Genera Insectorum

FASC. CCVIII-CCIX

GENERA INSECTORUM

DIRIGÉS PAR

P. WYTSMAN

FASCIUCLES CCVIII-CCIX

208. Homoptera. Fam. Membracidæ, par W. D. FUNKHOUSER
209. Diptera. Fam. Scatophagidæ, par E. SÉGUY.

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HOMOPTERA

FAM. MEMBRACIDÆ

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FAM. MEMBRACIDÆ

by W. D. FUNKHOUSER

WITH 14 PLATES

INTRODUCTION

THE family *Membracidæ* was first recognized and especially named as a more or less distinct group by Germar who in 1821 erected his division « Membracides » to accommodate certain forms which had been previously included in the « Cicadas » of Linnaeus and De Geer. Latreille used the same name in 1825. Burmeister followed with « Membracina » in 1835 and Blanchard in 1840 listed his « Membraciens ». Amyot and Serville in 1843 designated a number of species of this family as « Cornidorsi » and the term « Centrotitæ » was applied to other species by Spinola in 1850. However, the use of « Membracina » by Walker in 1851, « Membracinæ » by Stal in 1858 and « Membracida » by Fieber in 1875 rather definitely established the terminology. The modern ending of « idæ » for the family name was first used by Butler in 1878.

Although the *Membracidæ* include some of the most bizarre and grotesque of all insects, due to their peculiar pronotal developments, they have seldom been found to be of any economic importance and consequently have been studied almost entirely by systematists rather than by biologists or economic entomologists. As a result, a very large number of species have been described and their geographical distribution is fairly well known but practically no attempts have been made to work out the life histories of the insects or even to record their hosts.

The early work of Fabricius (1775-1803), Walker (1851-72), and Stal (1854-70) was of a very general nature and consisted chiefly in the description of species from all parts of the world. Fairmaire (1846) made a good start on general classification and Stal (1866) in his « Hemiptera Africana » made a definite attempt to classify the *Membracidæ* of Africa, the first regional study ever made of this family. Later, Melichar (1903-05), Jacobi (1910-12), Lallemand (1925-29) and more recently Pelaez (1935-36) have made valuable contributions to the knowledge of the membracid fauna of Africa.

The outstanding study of the *Membracidæ* of Asia was that of Distant (1907; 1916) in his « Fauna of British India » and recent reports by Kato (1928-33) and Matsumura (1912-34) have added a considerable number of new species from Formosa and Japan.

The classical report by Fowler (1894-98) on the family in « Biologia Centrali Americana » covered very completely the Central American forms and is extremely valuable because of the excellence of the keys and illustrations. Recently Plummer (1935-36) has begun a serious study of the Membracidæ of Mexico.

Australia, Oceanica and East Indies have yielded a large number of interesting species which have been described and tentatively classified by Goding (1898-1903) and Funkhouser (1927-35).

South America is very rich in *Membracidæ*. Berg (1879-84) early reported on the Argentine forms and many of the species of South America were recorded by Goding (1914-33) both during the period in which he lived in Ecuador and during his later years when he published a large number of papers on South American forms. In his later papers Dr. Goding constructed a long series of dichotomous keys in which he attempted to classify the large number of genera and species represented in the neotropical fauna. More recently da Fonseca (1932-36) has made valuable contributions to the literature of the South American forms.

The pioneer work on North American *Membracidæ* was done by Goding (1895) and Van Duzee (1908; 1917). Many species of *Membracidæ* had been previously described by Say (1825-59), Harris (1833-80), Uhler (1871-93), Fitch (1851-70) and other early American entomologists but Goding and Van Duzee placed the systematic work on a good foundation. Woodruff (1915-24) made some splendid critical studies of certain genera and Ball (1903-33), an unusually fine systematist, has done much to clarify the nomenclature particularly in the *Tribe Telamonini*.

Altogether the work on the *Membracidæ* has been widely scattered and consists in the descriptions of new species and the erection of new genera with a few real attempts at classification and taxonomy. The author's « Catalogue of the *Membracidæ* of the World » (1927) recorded the synonymy and bibliography of the family up to that year but of course this volume is now out of date due to the large number of new species which have been described and the changes in synonymy which have been made during the last decade.

In this monograph an endeavor has been made to assemble this widely scattered material, bring it up to date and present it in as compact and usable a form as possible. It is hoped that this may be of some value to students of this really remarkable and interesting family of insects.

Membracides Germar, Mag. Ent. IV : 7 (1821).

Membracides Latreille, Fam. Nat. Règne Anim. 427 (1825).

Membracina Burmeister, Handb. Ent. II : 126 (1835).

Membraciens Blanchard, Hist. Ins. Hémip. 532 (1840).

Cornidorsi Amyot and Serville, Hémip. 532 (1843).

Membracides Fairmaire, Ann. Soc. Ent. France. IV : 235 (1846).

Centrotitæ Spinola, Tavola Sinot. 27 (1850).

Membracina Walker, List Hom. Brit. Mus. 472 (1851).

Membracinæ Stal, Stet. Ent. Zeit. XIX : 234 (1858).

Jassidæ *(ex parte)* Stal, Hem. Afr. IV : 82 (1866).

Membracinæ Sahlberg, Cicad. 97 (1871).

Membracida Fieber, Cicad. d'Eur. I : 39 (1875).

Membracidæ Butler, Cist. Ent. II : 204 (1878).

CHARACTERS

The family *Membracidæ* is characterized particularly by the great development of the pronotum which usually conceals the scutellum, often extends over the entire body and sometimes completely conceals the tegmina. This peculiar enlargement of the pronotum often takes curious and grotesque forms. Other family characters are the three-jointed tarsi, antennæ minute and bristle-like inserted in front of and between the eyes, tegmina with distinct corium and clavus, veins of tegmina and of hind wings homologous and a hook on the episternum.

PHYLOGENY

The phylogenetic position of the families of the Homoptera is still a matter of much controversy among hemipterists. Osborn and Van Duzee have placed the *Cicadellidæ* in the highest position in the order of taxonomic rank, while Hansen and Kirkaldy make the *Fulgoridæ* the culmination of the phylogenetic table. Osborn holds that the *Cicadidæ* are the lowest of the homopterous families and considers the *Membracidæ* also very primitive while Ashmead places the *Membracidæ* next to the *Fulgoridæ* near the top of the list. Stal, whose taxonomic work was of a high order, considered each of the modern families as subfamilies, while McGillivray and Baker ranked each as a superfamily with the present subfamilies raised to family position. Interesting contributions to the subject have been made by Reuter, Sahlberg, Goding, Froggat, Ashmead and Distant but no two of these authorities agree on the same taxonomic arrangement.

Without entering into the discussion of the relative specialization and probable relationship of the other families, it would seem that the *Membracidæ*, as considered from the standpoint of the structure and development of the more important of the physiological systems, must be assigned a very low place in phylogenetic rank. In defence of this conclusion, the following arguments may be offered :

1. The entire sensory system is very poorly developed. We agree with Hansen that the phylogenist should attach much importance to the structure of sensory organs and the character of the antennæ. In the *Membracidæ* the antennæ are so minute as to be in most cases hardly visible and are but feebly provided with sensory apparatus. The responses of the insects to stimuli are exceedingly slow or entirely wanting.

2. The wings are extremely generalized. In an earlier paper (Funkhouser 1913) the author pointed out that the *Membracidæ* are in this respect even lower than the *Cicadidæ*, which Comstock and Needham (1899) have pronounced the most conservative of the Hemiptera so far as wing venation is concerned.

3. The genital organs are very simple. Little progress has been made in developing these structures from the ancient type.

4. The pronotum, to be sure, is highly specialized, but it is hardly logical to weigh these modifications of purely mechanical structures against the more important phylogenetic evidence offered by the sensory, motor and reproductive systems.

So far as the present evidence regarding the general relationship and phylogeny of the families of the division *Anchenorhynchi* is concerned, we would conclude that the *Fulgoridæ* are the most highly specialized of the families and considerably removed from the others in origin; that the *Cercopidæ*, *Cicadellidæ* and *Membracidæ*, in that order, have developed from a common stem; that the *Aethalionidæ* have branched off from the membracid stem but now represent a distinct family, and that the *Cicadidæ* are the lowest of all, with an origin considerably removed from the others. This arrangement may be diagramatically represented as follows :

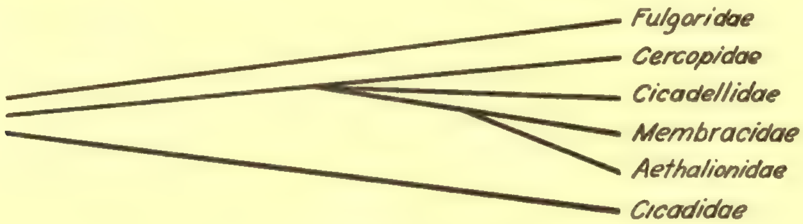


Fig. 1. — **Phylogeny of the Membracidæ**

DISTRIBUTION

The *Membracidæ* are primarily a tropical and subtropical family. Of nearly three hundred genera recognized in the family, less than fifty are found in the temperate zones and none in the arctic or subarctic regions. There seems to be little doubt but that the center of distribution of the group was somewhere in a tropical region and that migrations have been first eastward and westward in equatorial areas and that later the forms migrated northward and southward on the respective land-masses of the eastern and western hemispheres, their limits of distribution depending upon the adaptibility of the species to environmental and particularly to climatic and floristic conditions. Records of distribution from all parts of the world bear out such a hypothesis to a large extent and the geological theories of land bridges and life zones in comparatively recent times, as used to explain the appearance particularly of birds and mammals, are sufficient to account for earlier tropical migrations. Unfortunately there is no paleontological evidence to support this assumption since no fossil membracids have been discovered, although the closely related families of *Cercopidæ, Fulgoridæ* and *Aphidæ* are represented in paleontological literature. Buckton (1903) proposed the theory that previous to the glacial period when « the monkey and the palm-tree occurred within the limits of the arctic circle » the *Membracidæ* became distributed by a northern route. Since the condition which Buckton postulates would place the period of migration sometime around the Eocene and since these land-bridges would have been far to the north, his theory does not seem particularly attractive.

The great home of the membracids at present seems to be South and Central America, with equatorial Africa, southern Asia, and the East Indies offering hardly less abundant forms. According to the present generally accepted faunal areas of the earth, the *Membracidæ* are represented as follows :

Palearctic Region (Europe; the temperate parts of Asia limited by the Himalayas; the north of Africa; Iceland and the islands of the Atlantic).

Very poorly represented. Only three genera on the entire continent of Europe, but two species in Great Britain, four species in Russia, a few representatives in Siberia and north China, and none

reported from Scandinavia or Iceland. A limited number of species in northern Africa, chiefly forms which have migrated from the south.

Ethiopian Region (Central and South Africa and its islands; Arabia).

Rich in genera and species. Less collecting has been done in this area than in most of the other tropical and semitropical regions but there is evidence of an abundant membracid fauna.

Oriental Region (India and the East Indies).

Extremely rich both in the number of forms represented and in the number of individuals. The center of distribution for the subfamily *Centrotinæ*.

Australian Region (Australia, Tasmania and neighboring islands).

Well represented by rather distinct forms. Although only a comparatively few localities in this region are represented by material in collections, these localities have yielded a large number of species.

Nearctic Region (America north of Mexico ; Greenland).

About forty genera, some represented by only one species, becoming less abundant northward. A few species common in Canada as far north as Perry Sound. None reported from Greenland.

Neotropical Region (Mexico; West Indies; Central and South America).

The most important of all the regions for the *Membracidæ*. Central America and the northern part of South America have yielded more genera and almost as many species as all the rest of the world together. Five of the six great subfamilies are found only in this region.

Oceanic Region (Extending from and including New Guinea on the west to the most easterly islands of Polynesia on the east and from New Zealand on the south to Micronesia and Hawaii on the north).

Only 33 species reported from the entire region, practically all of which are from New Guinea and the Solomon Islands. The paucity of material from this area is probably due to lack of collecting rather than absence of the insects since the surrounding regions are rich in *Membracidæ*. However, only two species have been found in Hawaii and both of these are introduced forms.

HABITATS

The *Membracidæ* are sun-loving insects. They are most commonly found on grasses, shrubs and trees growing in the open, on bushes and young trees at the edges of timber or on vegetation along roadsides. They are seldom seen in shady woods and we have never found them in dense jungles or in dark forests. In practically all cases they seem to prefer the younger plants; the tree-inhabiting species are most likely to be found on saplings, or, if on older trees, on the youngest twigs. Most forms stay close to the ground, and even those species that live on trees of considerable size are usually on branches not over twenty feet from the ground. The grass-inhabiting forms seek the youngest plants or the youngest leaves of the older plants. This is probably because of the fact that the membracid beak is not strong and the young tissue is easier to penetrate. Dry, warm, sunny spots on young vegetation is their preferred habitat.

However, one exception must be made to the above general statement. Mr. Felix Woytkowski,

who has sent the writer a considerable amount of interesting material from Peru, collected one species, *Gelastogonia rufomaculata* Fallon, from the roots of water plants and from moss which was actually under water in the mountain stream Utcubamba in San Ildefonsa, Peru. The insects were taken on July 24, 1936. Mr. Woytkowski states (in correspondence) : « These were positively submerged in water and the stream has a powerful current ». This is the only example known to the writer of aquatic or semiaquatic *Membracidæ* and we believe the case to be entirely accidental since the species concerned has no physiological structures which would fit it for such a habitat.

HABITS

Field notes from all parts of the world indicate that the habits of the *Membracidæ* are about the same wherever they are found. Practically their entire life is spent on the stems and leaves of plants where they feed, mate and oviposit and where the nymphs go through all of the instar stages.

Their life is on the whole very quiet. The adults have the interesting habit of ranging themselves in rows on the branches, often thirty or forty individuals placing themselves so close together that their bodies almost touch one another and remaining in this position for hours at a time. In the large majority of cases the adult rests with its head pointing toward the base of the branch, or pointing downward if it is on the trunk. By actual counts, made in many parts of the world, nine-tenths of the individuals counted were found in this position so that it seems to be a universal habit but the reason for it is entirely conjectural. It may be that such an attitude increases the resemblance of the insect to thorns, twigs or irregularities in the bark or leaf surface of the host plant, but this is not evident in ordinary observation The nymphs are usually found tightly flattened in crevices of the bark or pressed closely in the axil of a leaf or the crotch of a twig. In most cases the coloration of the nymph is such that they are not easily seen when in such positions. This protective resemblance in many cases is strengthened by the presence of the dorsal spines of the immature insect, which carry out leaf and bark outlines to an extent which is very conducive to effective concealment.

Membracids are generally most active during the warmest parts of the day. Feeding, mating, oviposition and flight have all been observed oftenest during the hours from eleven o'clock in the morning until four in the afternoon, and more activity is shown on extremely warm days than on cool ones. This may be due to the fact that the bird enemies or other diurnal foes of the insects are less numerous during the heat of the day but such an explanation can be advanced only as a theory. In the case of certain species attended by ants it has been suggested that the activity of the membracids during the hours mentioned might be due to the activity of the ants at that time, but this may be the converse of the true reason, since it may be that the ants are influenced by the membracids, and in either case, there is no apparent reason why either insect should show increased activity at definite periods unless it be because of tropisms of light or temperature.

When at rest the insect generally chooses the underside of the first or second-year growth of the trees or the upright stem of herbaceous plants. The legs are spread rather widely apart, allowing the abdomen to almost touch the host but keeping the hind legs in a suitable position for springing. This position may be held for long periods of time, often for hours together, though actual records are not available owing to the fact that the patience of the writer in timing the resting period of an individual has never equaled the pleasure of the insect. Some species have the habit of moving spirally around the twig, the movement being very slow but sufficient to accomplish a complete circuit of the twig in an afternoon. It has been thought that this is done in an attempt to keep in the sunlight as the sun moves across the sky, but this again is merely a conjecture.

If approached, the insect usually moves around to the opposite side of the twig or stem and makes no attempt to fly, except as a last resort in escaping. A slowly approaching object is not readily noticed, and the insect may usually be touched with the finger before it moves if care is taken to make the movement of the hand very slow and deliberate; a sharp, quick movement in the direction of the insect, on the other hand, results in its immediate flight. Few membracids respond quickly to stimuli of light or heat; the light from a mirror or the condensed rays of the sun as projected through a lens have little effect on the resting insect if no other stimuli are present. Rain causes the membracid to move to the underside of the stem or leaf, but a strong wind merely causes it to cling more tightly to its host without change of position.

In feeding, the insects display no peculiarities and the process is a leisurely one. The beak of the membracid, while not particularly strong, is well fitted for piercing, being robust and heavy and fitted with bristle-like mandibular and maxillary setæ. Both nymphs and adults have little difficulty in forcing the beak into the young stems and petioles of the leaves, the parts of the plant on which they most commonly feed. It is doubtful whether in all cases the labrum or the labium actually enter the tissue, since it seems possible for the insect to make a sufficient puncture with the setæ alone. A few species, notably *Entylia bactriana*, *Enchenopa binotata* and *Atymna castaneæ* in North America, and *Gargara projecta* in the Malay Peninsula, have been observed feeding on the blades of leaves, but this is unusual. Feeding may be observed at almost any hour of the day, depending on the species, but the most favored time appears to be the middle of the afternoon. Very little energy is displayed in the feeding movements. The insects remain in one spot for a long time, seeming to find an inexhaustible supply of sap at each insertion of the mouth parts, and they show little disposition to seek new feeding places. So deeply and firmly is the beak sometimes buried in the tissue of the host, and so absorbed do the insects appear to be while obtaining food, that often the mouthparts are broken off in collecting and are left in the stem or leaf when the specimen is captured.

The process of feeding in some species is accompanied by the close attendance of ants. It is presumed that the presence of the ants is to be explained by their well-known habits of seeking the honeydew secreted by the membracids. A large number of observations, however, have suggested that possibly there may be another reason for the presence of ants at this time. In many cases the ants have been found grouped about the head of the membracid, as though sharing the sap drawn from the stem. Whether or not the ant would be able to make use of such sap is not known, but the phenomenon has been noticed so many times that it seems unreasonable to believe it accidental. Be that as it may, the membracids seem in no way disturbed by the attention of the ants, and continue the feeding process without noticing their presence.

A study of the locomotion of the *Membracidæ* does not justify the use of the term « tree hopper » as popularly applied to the family, particularly in the United States. Of the three methods of locomotion — flying, walking and jumping — the last is certainly the least used.

Most membracids fly well for short distances, with a sharp, whirring flight which in most cases is too rapid and too erratic to be followed by the eye. The flights, however, are seldom sustained for any great distance. The longest flights ever actually measured by the writer were one of fifty yards from one tree to another made by a female of *Telamona unicolor* in Tompkins County, New York, and one of seventy-five yards across an open glade in the forest near Elisabethville, South Africa, made by a female of *Oxyrhachis subserrata*. In each case the insect pursued a rather irregular course, swinging for several feet from one side to the other of a straight line in the flight. Specimens of *Atymna castaneæ* in the United States and of *Tricentrus truncaticornis* in Sumatra have been taken while flying around lights so it is evident that these species, at least, have the power of remaining on the wing for some little time.

Since the membracids have large, powerful, well-developed wings, there seems to be no reason why they should not be capable of long, sustained flight unless they are handicapped by the weight and size of the over-developed pronotum. Buckton (1903) claims that the *Membracidæ*, in spite of their abnormal pronotal structures, have no difficulty in locomotion, and states on the authority of Mickeljohn that even the species *Bocydium globulare*, which is one of the most bizarre of the tropical forms, « flitted from one shrub to another without difficulty or apparent laboured flight ». The writer cannot agree at all with this conclusion. Our observations on exotic forms indicate that they are seldom able to handle themselves in creditable fashion even though the mechanism and development of their wings are excellent. It seems very reasonable to conclude, therefore, that the shape, size and weight of the enormous pronotum proves more of a handicap to the insects than has been supposed. Certainly the *Membracidæ* are far inferior to the closely related families of *Cicadidæ*, *Fulgoridæ*, *Cicadellidæ* and *Cercopidæ* in the matter of flight.

In the matter of jumping, the *Membracidæ* seem to use this method of locomotion only when leaving the twig for flight. The insect leaves its support with a quick snap, which is apparently accomplished by means of the powerful hind legs though the movement is entirely too rapid to be diagnosed by observation. The spring from the support on which the insect has rested seems to carry it for some little distance before the wings are spread. There is, however, no true leaping or hopping from twig to twig or from leaf to leaf in any species that has been studied in the field.

The commonest method of locomotion is merely walking about over the host. In this process all three pairs of legs seem to be equally functional. The movement is generally slow and deliberate, but when disturbed the insect is able to scramble rapidly around the twig in a rather awkward and amusing fashion. Both nymphs and adults adopt this method as the ordinary means of progress. The nymphs, of course, are unable to fly and in no case has a nymph been seen to attempt anything resembling a leap.

At this point in the discussion of habits it may be well to mention the subject of care of the young, or « maternal affection », which has been given rather general circulation in connection with the *Membracidæ*. The theory apparently originated in a report by Miss Murtfeldt (1887) which has been given wide credence and has often been quoted (*e. g.* Kirkaldy 1906). Miss Murtfeldt describes the finding of an egg cluster of *Entylia sinuata*, with a female on the leaf, and expresses surprise that the insect did not fly away when touched but remained on the leaf while the latter was carried to the house and later after the eggs had hatched. The significant statement is made, however, that « although I would not assert that she made any demonstrations of affection, she certainly seemed to enjoy having them (the nymphs) around her ». This appears to be the total evidence for belief in the maternal solicitude which is attributed to the *Membracidæ*. The truth is that the species in question is one of the most sluggish of all of the membracids, and the most persistent in clinging to the host plant. The writer has often carried a thistle covered with Entylias for several miles along a country road without dislodging the specimens. Moreover, when an attempt is made to take the insect from the leaf, the insect not only does not spring off, but actually seems to cling more tightly to the hairy surface of the leaf to escape being captured. The experience of Miss Murtfeldt is therefore not unusual, nor is the behavior of the membracid in the case at all unnatural, and it is unlikely that the theory of maternal affection as based on her report can be proved. Efforts to substantiate such a theory by observation of a large number of species in many parts of the world have yielded no evidence in its favor. Many forms have the habit of clinging closely to their host plant if disturbed, and this is true whether or not there are eggs or nymphs on the plant with them.

On the whole, the *Membracidæ* must be considered as rather sluggish insects, content to live a quiet life and showing much less general activity than most of their near relatives.

MIMICRY

The grotesque appearance of many of the species of *Membracidæ* suggests at once that the peculiar structures must have been developed as some sort of protective imitation or mimicry. Certainly many of the forms bear a remarkable resemblance to thorns, leaves or other parts of a plant or to other insects. As a result, most observers have apparently assumed that the unusual pronotal developments of these insects are the result of Natural Selection and serve as methods of protection. Poulton (1891; 1903) has attempted to explain the meaning of a series of forms by mimicry and protective resemblance; Mann (1912) has noted a protective adaptation in a Brazilian membracid, and various authors have called attention to the resemblance of different species of *Membracidæ* to parts of their hosts. No doubt the appearance of a considerable number of species may be explained by such a theory, particularly in the matter of coloration. The colors of both nymphs and adults of many forms tend toward very effective concealment. Browns, greens and grays in neutral tones predominate in the color scheme of the family, and these tones blend with those of the leaves and bark of the host plants to an extent which offers excellent protection.

In the matter of structure, however, a critical study of the pronotal processes from generalized to specialized forms, breeds the suspicion that the subject cannot be lightly dismissed or explained by a mere reference to mimicry, protective coloration, imitation or Natural Selection. A few well chosen examples might seem to illustrate perfectly protective imitation. Such examples would include the genus *Umbonia* with the peculiar thorn-like dorsal spines, the members of the genus *Stegaspis* which so remarkably resemble dead leaves, and the species of *Cyrtolobus* which look like fragments of bark. Another lot would seem also to carry out the same idea but would require a little more use of the imagination in the explanation, as, for example, the species of *Bolbonota* and *Polyglypta* which, with a little stretch of the imagination may suggest seeds, or the unusual forms of *Spongophorus* which might suggest fungi, or the peculiar multibulbous specimens of *Heteronotus* which are said to resemble certain tropical ants. However, when one examines the even more grotesque forms, as represented in such genera as *Pyrgonota*, *Hypsauchenia*, *Pterygia*, *Anchon*, and many others, even the wildest flights of fancy fail to suggest a resemblance to any conceivable part of a plant or other object in the insect's environment. If one continues this attempt to explain the structures on the basis of protective adaptations he soon reaches the limits of his imagination and is led into the realm of conjecture — which does not provide safe ground for the scientist.

The truth of the matter is that the great majority of the species of *Membracidæ*, in spite of their over-developed pronotums, do not suggest any special type of adaptation for concealment but on the contrary their structures make them rather conspicuous on their hosts. More often than not, the peculiar processes on the body do not in the least resemble any part of their host plant or any known object in their environment. Mereover, the species usually cited as wonderful examples of mimicry or protective resemblance are comparatively rare; surely not a convincing argument for the Natural Selection theory which is based on utility and on the supposition that those forms which have the best imitative structures would increase in number over those lacking such structures.

We are therefore more inclined to the theory that the evolution of the pronotum from generalized to specialized conditions is an example of orthogenesis and that in many cases the exaggerated pronotal developments prove a handicap rather than an advantage to the insects.

ATTENDANCE BY ANTS

The attendance by ants on various species of *Membracidæ* has often been recorded. Interesting notes have been published on this subject by Belt (1874), Rice (1893), Green (1900), Baer (1903), Buckton (1903), Poulton (1903), Branch (1913) and Lamborn (1914), and attention has been called to the fact by many other authors. The writer (1917a) listed a considerable number of myrmecophilous species of northeastern United States with the species of ants associated with these forms.

The mutual relationship between these two kinds of insects offers a most interesting field for study and opportunities for delightful and fascinating observations of the insects in their natural habitats. In general this relationship seems to be about the same as that shown between ants and other myrmecophilous Hemiptera, particularly the aphids and coccids, and the symbiosis is apparently one of mutual benefit, but there are a number of unsolved problems regarding the factors involved which need further study.

One of the first of these problems is suggested by the fact that some species are always attended by ants while others are never attended although there are apparently no physiological differences to cause the distinction. For example, in North America, the genus *Ceresa*, which is very well represented in species and in individuals, is, so far as is known, never found in association with ants, while the genus *Telamona*, almost equally well represented, seems always to be attended. Another problem arises from the fact that certain species attended in one locality have never been reported as being attended in other localities, even in the same general region. As an illustration, ants are usually found with the nymphs, at least, of *Stictocephala inermis* in eastern United States but have never been seen with the same species in Texas. Again, it sometimes happens that a species which is always attended wherever it is found, has a close relative in the same genus and in the same locality which is never attended. This is true of several species of *Gargara* in the Orient. The questions suggested by these facts cannot be answered on the basis of abundance or distribution nor on the factor of the production of the anal secretion which attracts the ants. For example, *Enchenopa binotata*, one of the commonest species in the United States, with a wide distribution and an enormous number of individuals, is, so far as is known, never attended by ants, although the nymphs of this species have the same extended anal tube and secretes a fluid as do those of the myrmecophilous forms. Moreover, they are so abundant that they should be easily discovered by the ants if there were any occasion for a mutual relationship.

The species of ants attending *Membracidæ* seem to be common to all the *Membracidæ* concerned in a given region. Where two species of *Membracidæ* are abundant on the same host at the same time, the same kind of ants may be found attending both species, but the same individual ant has never been observed to go from one species to the other in collecting the secretion. The number of species of ants attending membracids in any one area seems to be rather limited. The species collected in eastern United States by the writer and determined by W. M. Wheeler, include *Formica obscuriventris* Mayr., *Formica exsistoides* Forel, *Camponotus pennsylvanicus* De Geer, *Crematogaster lineolata* Say, *Prenolepis imparis* Say and *Formica fusca* Fabr. Since only those species are recorded which were actually observed taking the secretion from the membracid, it is likely that the above list of species is not at all complete for the region. From other records in the literature it would appear that the Formica in North America are oftenest noted as attending *Membracidæ*. Professor Wheeler, in determining ants taken with South

African membracids, states (in correspondence) : « These ants (*Plagiolepsis custodiens* F. Smith) represent in South Africa our species of *Formica* and *Lasiis* and probably derive much of their food from membracids and coccids. » Other South African ants attending *Membracidæ* collected by the writer in the vicinity of Victoria Falls were kindly determined by M. H. St. John Donisthorpe of the British Museum as *Polyrhachis* (*Myrma*) *schistacea* and *Crematogaster* (*Scrocœlia*) *castanea rufonigra* Emery. The commonest species of attendant ant taken by the writer in the Malay Peninsula was the small longlegged form *Plagiolepsis longipes*. In Java the only ant taken by the writer was *Myrmecaria brunnea subcarinata* Sm. Dr. M. A. Lieftinck of the Zoological Museum at Buitenzorg also reports this same species as attendant on *Hypsauchenia recurva* Funkh., and states as a footnote in one of the writer's reports (1935b) :

> « At Tjibodas I have frequently wathced small colonies of this membracid on the end-shoots of a small tree of *Talauma candollei* L., an indigenous *Magnoliacea* cultivated in the garden. Both imagines and larvæ were found on this tree at any time of the year, the larvæ being assiduously attended by ants (*Myrmecaria subcarinata* Sm.) for the sake of a sweet secretion emitted from the extremity of their body. A colony of *Hybandoides sumatrensis* Funkh.. also found at Tjibodas, but on a host plant unknown to me, was being attended by the same species of ant. »

Ants attending various species of *Ebhul* and *Leptocentrus* collected by the writer in India were determined by Mr. Donisthorpe as *Polyrhachis bihamata* Den., and *Dolichoderus* (*Hypoclinea*) *affinis glabripes* Fowl.

Of course all of these examples represent merely the commoner forms collected on varied occasions and from scattered localities and doubtless include only a few of the species of ants which concern themselves with the *Membracidæ*.

The behavior of both the ants and the membracids is much the same wherever they are studied. The ants stroke their charges with their antennæ, whereupon the membracids give off from the anal tube a liquid that issues in bubbles in considerable quantity. The anal tube of the membracid is capable of great evagination, especially in the nymphs, in which it is long and cylindrical and usually tipped with a fringe of fine hairs. The honeydew is eagerly taken from the end of this tube by the ants. In many species the adults as well as the nymphs are sought, and the ants seem to be as attentive to one as to the other but the adults have not been observed to excrete the liquid to the same extent as the nymphs. That the ants are well paid for their attendance can hardly be doubted when their industry around the congregations of *Membracidæ* is noted. In many cases the hiding places of the membracid are at once betrayed by the swarms of ants present. It is not believed that the ants herd or segregate their charges as in the case of certain of the *Aphidæ*, but shelters for membracid nymphs are not uncommon.

The advantage to the membracid is evident by the protection given by the ants, which do not hesitate to bite viciously the fingers of the collector who seeks to remove nymphs or adults from the host. The ants have been observed also to attack spiders and attempt to drive away *Reduviidæ* in the neighborhood of membracid colonies.

It as been suggested in a preceding section that in some cases the ants may take advantage of the punctures made by the membracids to procure sap. The best evidence of this is the fact that ants often remain gathered about the spot where the membracid has fed after the latter has moved away, and apparently they find something there to attract them. This may be explained, of course, by the theory that anal fluid from the membracid has been left on the plant, but it does not account for the fact that the ants are often at the anterior rather than the posterior end of the insect.

The feeding habits of the *Membracidæ* seem in no way affected by the presence of ants, which

often swarm over them in large numbers while feeding is in progress. Both nymphs and adults are apparently oblivious of the presence of their hymenopterous companions, and continue their usual activities with equal serenity whether ants are present or absent.

The liquid sought by the ants has been much discussed in connection with the *Aphidæ* and the *Coccidæ*, and seems in no way different in the *Membracidæ*. It is colorless and transparent, rather heavy, and somewhat sticky. When first exuded it is inclined to be frothy, due no doubt to bubbles of air which emerge with it, but it quickly clears on settling. It is practically tasteless even in comparatively large quantities, and many attempts to distinguish a sweet taste have proved unsuccessful. The term « honeydew », therefore, commonly applied to the fluid, is hardly a descriptive one. It is very likely, of course, that the liquid may contain sugars not detected by the human tongue, and this would seem to be indicated by the fact that fermentation appears to begin if the substance is left exposed. No chemical analysis of honeydew has been made by the writer.

EXTERNAL ANATOMY

The external anatomy of *Membracidæ* differs in rather interesting and curious, but more or less superficial respects, from the other families of the Homoptera. This of course is due chiefly to the unusual development of the pronotum and the adaptation of the other structures to conform to the conditions thus produced. More fundamental are the types of wings and the arrangement of certain sclerites which in some cases furnish good characters for classification. A brief summary of the more important external structures is presented as follows :

Exoskeleton. — The exoskeleton of the *Membracidæ* is strongly but not uniformly chitinized. The head and thorax, particularly the latter, are hard to the point of brittleness; but in the abdomen and in those parts of the meso- and metathorax that are covered by the pronotum, the impregnation of chitin is much less heavy.

The exposed parts of the cuticle — in the *Membracidæ* much of the actual body surface is not exposed but is covered by the pronotal developments — are modified by remarkable and often grotesque punctuations, ridges and areolations, the function of which is conjectural. The commonest decoration consists of irregular arrangements of punctures, varying in size and distribution but fairly constant in appearance. In fact, this punctuation, whether deep or light, fine or coarse, dense or scant, has been used by practically all systematic workers on the group, and there can be no question as to the taxonomic value of such structures at least as specific characters. These punctures are merely depressions, or pits, extending into or even through the cuticle but in no case perforating the entire body wall. They apparently have no connection with tracheal or glandular development and must be regarded as being merely superficial sculpturing. Occasionally the pits give rise to hairs. This is, however, of no significance so far as the association between the two structures is concerned, since in the very pubescent species the hairs arise as abundantly from between the punctures as from their centers. Moreover, many strongly punctate forms are entirely without hairs, while many hairy forms are entirely without punctures. The association of the two, therefore, is believed to be accidental.

Pubescence of various types is common throughout the family. It varies from thick, tangled mats to sparsely occurring thin hairs. Such growth occurs oftenest on the sides of the meso- and metathorax and on the lateral areas of the pronotum.

The colors of the exoskeleton are in the main somber and dull. As might be expected from

the phytophagous habits of the insects, the usual colors run to greens, yellows and browns. The body colors are generally brown and black. A few tropical species show rather gaudy markings of red, yellow and orange, and these colors occasionally appear in the nymphs. The colors in general, even the brighter ones, are permanent, with the exception of the various shades of green, which fade in cabinet specimens. Most colors, except the greens, change but little when the specimens are preserved in alcohol.

The Head. — In its essential parts, the head of the membracid differs little from those of other Homoptera. It varies within the family in size and shape of the sclerites, but shows little variation in their location or relative position.

The position of the head varies decidedly and this has been used as a systematic character in certain subfamilies (*e. g.* Buckton 1903). The variation ranges from an angle slightly greater than a right angle with the body, in certain *Smiliinæ*, to an almost prone position in many of the *Centrotinæ*. In no species does the head project straight forward on a line with the body, and in practically all species, no matter what the position of the head, the beak projects directly backward and lies between the coxæ when at rest.

The compound eyes are large and prominent and are located at the extreme lateral margins of the head. In most cases the thorax is hollowed out to receive the eyes, and partly covers the upper and outer surfaces.

Two ocelli are present. These are located on the cephalic margin of the head, and their position with relation to each other and to the eyes is apparently constant within a species. This offers in some subfamilies, particularly *Darninæ*, a good specific character. The ocelli are always between the eyes and usually on a line with each other; but they may be near together close to the epicranial suture or far apart near the inner margins of the eyes.

The antennæ are located below and slightly in front of the eyes. These organs are very poorly developed, and studies in the biology of the insects seem to indicate that their function is extremely limited. Three basal segments are present, each more or less cylindrical, with the first segment the shortest. The filament is fine and hairlike and very minutely segmented. From seventy-five to eighty-two segments may be counted in the filaments of the species of the *Smiliinæ*, and a slightly smaller number in the other subfamilies. These segments are longer at the base, closely compressed in the center and longest at the extreme tip of the filament. At the swollen base of the filament are a series of pits, from eight to twelve in number, situated on the inner curvature and giving rise to two or more bristle-like setæ. These structures are best seen in certain species of the tribe *Telamonini* of the subf. *Smiliinæ*. The antennæ are usually better developed in the nymphs than in the adults.

The occiput consists of two sclerites more or less distinctly separated from each other, occupying the extreme hind part of the dorsal surface of the head and forming caudad the upper boundary of the occipital foramen. This region is covered by the overlapping flange of the anterior prothorax, which forms with it an articulating surface and is not visible unless the head is separated from the body. The lower ends of the occiput behind are fused with the postgenæ below them and the suture is very indistinct in the adult head. In the nymph, however, the line of demarkation can usually be determined. Apparently these two regions — occiput and postgenæ — are intimately connected in the membracid head and are probably closely related as to origin. The ordinary lower boundary of the sclerites appears to be the upper line of the eye, but in a few cases the suture has migrated to a point considerably below this line.

The vertex likewise consists of two sclerites, separated by the epicranial suture, and makes up the largest area of the cephalic part of the head. The sclerites are equal in size and are complements of each other in shape and position. The vertex occupies all that part of the head between the compound

eyes, and between the occiput above and the clypeus and genæ below. In each sclerite is located an ocellus. As has been noted, the relative position of the ocelli in the vertex is variable, the migrations of these organs being both sidewise and up and down. They are always, however, in a line with each other horizontally and equidistant from the epicranial suture. In shape each sclerite of the vertex is roughly pentagonal, the basal, or dorsal part often being sinuate to follow the anterior margin of the prothorax into which it fits snugly. On the whole the vertex shows considerable variation in form, and the lower cephalic edge is often infolded to form a sharp angle over the base of the antennæ.

The clypeus is one of the most variable, most prominent, most interesting and most important of the sclerites of the head. The position of this sclerite with reference to the vertex is, however, constant and no difficulty is experienced in locating it. The position of the clypeus as an unpaired sclerite between the arms of the epicranial suture suggests at once the possibility of confusing it with the frons. This indeed would be the natural conclusion, did not the location of the sclerite with reference to the arms of the tentorium of the endoskeleton preclude such a possibility. The anterior arms of the tentorium have been shown (Comstock and Kochi 1902) to arise as invaginations at the cephalolateral angle of the clypeus or between the clypeus and the frons. In the case of the *Membracidæ* these arms undoubtedly reach the cephalic margin of the sclerite in question, although they have migrated slightly to the laterad. It would be impossible, therefore, to reconcile the conclusion that this sclerite represents the frons, with any previous work done on the subject, and it seems evident that it must be considered as the clypeus. In fact such a conclusion accords perfectly with the work done by Bentley (1900) on the cicada, in which he shows that the large projecting sclerite commonly known as the frons in that insect is in reality the clypeus.

In shape the clypeus is generally subquadrangular as seen from before, but projects backward at its extremity to form a deep, rounded keel. This keel articulates with the gena on either side, and lifts the distal end of the clypeus up from the anterior outline of the head to an extent which often leaves a sharp angle between the most cephalic part of the clypeus and the base of the labrum. The variation in the shape of the clypeus and in the facial outline which it makes with the genæ offers a systematic character of some importance. In general the character is generic and apparently constant. The shape may vary from a broad, flat, almost perfect rectangle to a swollen rounded spindle or diamond, or, in some cases, nearly a circle. It may continue with the genæ an unbroken lower outline of the face, or may project far below the genæ to form a long extension. This variation has been used as a specific character in certain American genera, particularly *Ceresa* and *Stictocephala*. Occasionally the outer margins of the clypeus are covered by the overlapping projections of the vertex; again, the vertex may be prolonged to a point below the clypeus. When such characters are present they have invariably been found good for systematic work. In fact the relation in position between the clypeus and the lateral margins of the vertex (the « cheeks » of the older writers) has been often noted as an excellent character in taxonomic tables. The clypeus is much inclined to pubescence and the tip is usually decorated with stiff hairs or bristles which partly cover the base of the labium.

The frons is not represented as a distinct sclerite in the *Membracidæ*. In certain forms, however, a vestigial segment which apparently represents this sclerite may occasionally be found between the vertex and the clypeus. This has never been found as a constant, clean-cut, and well-marked sclerite, but numerous suggestions of its presence are offered, chiefly in nymphal material. Curiously enough the evidence is not limited to a single subfamily but is scattered through widely separated genera. It is assumed that in the more primitive forms of insects the frons is present and bears the middle or anterior ocellus and since in the *Membracidæ* only two ocelli are present it would appear that in this family the frons has disappeared, and with it the median ocellus which it contains. If the triocellar condition is the more primitive, the *Membracidæ* is this respect are rather highly specialized.

The labrum is a single, heavily chitinized, subcylindrical piece attached to the distal end of the clypeus and projecting usually ventro-caudad from that sclerite. Because of the inclined or prone position of the head, this piece is not visible except occasionally at its basal part from a strictly cephalic view of the insect. Little variation is noticed in the labrum, but in the subfamily *Platycotinæ* it tends to be shorter and stouter than in other membracids. Although in the *Membracidæ* the labrum should perhaps be considered as one of the head segments and not as an appendage, it is more or less movable and probably serves to support and guide the rostrum.

At the extremity of the labrum arises a small triangular piece, the epipharynx. This sclerite is always distinct in both nymph and adult. In the former it appears as a soft, light-colored fleshy extension of the labrum; in the latter as a stiff, hard, sharp segment distinctly set off at its base. In position it follows the general course of the labrum.

The genæ form the lateral outline of the head and give the facial contour which is sometimes used in systematic diagnosis. Each gena is irregular in shape, being bounded dorsad by the vertex and mesad by the clypeus. Its lower extremity is contiguous with the base of the labrum. In general outline it is usually a long, rather flat plate, beginning at the lower margin of the eye and continuing to the rostrum. In the *Smiliinæ* the ends are more or less pointed and the middle is swollen; in the *Membracinæ* the entire sclerite is inclined to be nearly quadrangular. The genæ are not set in the same plane as the frontal surface, but extend slightly caudad, so that the width ot the sclerites determines in part the depth of the head.

Just behind the genæ and forming the basal surface of the epicranium are the postgenæ. These sclerites extend from the occiput to the labrum and are most irregular in shape. The upper extremity of each sclerite is projected laterad in a broad disk which almost entirely covers the hinder part of the eye. The inner edge bounds the occipital foramen and the lower end fuses with the lateral margin of the labrum. The extreme ventral projection follows the line of the labrum on the inner margin and the genæ on the outer cephalic, and ends in an attenuated point.

The occipital foramen, as will be noted from the foregoing, is an almost circular opening, its edges lined with a thin connective-tissue membrane which is continuous with a like membrane from the inner body wall of the prothorax. This conjunctival membrane is of greater extent in the nymph than in the adult.

The rostrum, or beak, consists of a two-jointed labium containing the bristle-like maxillæ and mandibles. It is stout and heavy, and is better developed in the nymph than in the adult. In the former it is rather fleshy and swollen; in the latter it is harder and more slender. The length of the rostrum has been used as a systematic character; but this character not only is of very doubtful value, but is hard to determine owing to the fact that the rostrum is carried flat against the ventral surface of the body. It may be hardly longer than the labrum or it may extend caudad beyond the hind coxæ. This variation is, to be sure, great, but is not constant. Neither within the genus nor within the species has this character been found useful in systematic work.

The labium in the *Membracidæ* does not differ essentially from that organ in other Homoptera. It consists of two segments, the basal segment being two or three times as long as the distal. The labium is grooved and bears within the groove the mandibular and the maxillary setæ. The entire organ is movable, and when the insect is feeding it projects downward at right angles to the body. When not in use it is folded back between the coxæ on the median ventral line of the body. In every form studied, the labium has been found to be straight, and no cases have been discovered in which the distal segment was bent forward as has been shown to be the case in certain other Hemiptera.

The maxillæ are modified to form long, bristle-like setæ. They originate from the inner surface of the vertex above the ocelli, at a point about midway between the ocelli and the margin of the occiput

and slightly nearer than the ocelli to the epicranial suture. The base of each maxilla is swollen to form a cylindrical club, which represents in length about one-third of that part of the maxilla inclosed in the head proper. The entire seta is uniformly cylindrical and smooth. It often extends for some length beyond the tip of the labium when extruded. The tip shows some variation, but in most forms it is gradually acuminate to a very sharp extremity. In one species of the genus *Thelia* the tips of the maxillæ show a bifurcate condition, and in the genus *Gargara* they appear to be curled but it is doubtful if this has any anatomical significance.

The mandibles originate likewise from the vertex, but from a point latero-ventrad of the ocelli. The base is broadly swollen and bicipital at its junction with the skeleton of the head. Like the maxilla, the mandible is extended in the form of a long, bristle-like seta; but, unlike the maxilla, this seta is not cylindrical but is flat and lance-like. The extremity is produced into a blade, which is smooth on the outer and sinuate on the inner edge. In length the mandibles and maxillæ are about equal.

It will be noted that the attachment of the mandibular and maxillary setæ to the vertex does not agree with the conclusions reached in regard to other insects, in which these organs originate from the postgenæ. In a large number of dissections of the membracids, however, this structure seems to remain constant. Whether this condition represents a more or less specialized arrangement, or whether it is a result of a migration of organs, can be determined only by further investigations. The position of the base of the mandibles as here described has been found to vary only in a few of the species of one subfamily — the *Membracinæ* In this group it apparently arises from the upper part of the clypeus. This may represent a still further migration or a migration in a different direction from the generalized condition.

The head structures described in the preceding paragraphs are diagrammatically shown in the following figure :

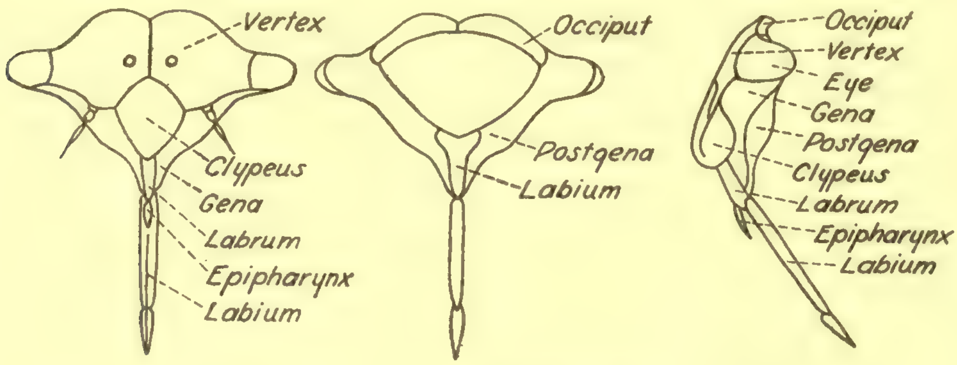


Fig. 2. — **The membracid head**

The Thorax. — Superficially the thorax presents the most striking and interesting part of the exoskeleton. This is of course due to the remarkable development of the pronotum, which is characteristic of the family. The promise of peculiar scleritic structure thus suggested is not fulfilled, however, when the anatomy is studied. Aside from the unusual and oftentimes grotesque enlargement of the prothoracic tergum, the general arrangement of the skeletal parts is comparatively simple and rather easily determined. The prothorax is very weakly attached to the mesothorax and separates from this segment easily. The mesothorax and the metathorax are firmly joined and the sclerites occasionally overlap in such a fashion as to strongly unite these last two segments. On the whole the tergum of

each thoracic segment is broad, smooth, and, with the exception of the pronotum, simple. The pleuron is narrow, irregular, and more or less complicated, the sclerites are inclined to be twisted from a normal position. The sternum is broad, much sculptured, and indistinctly sutured.

The Prothorax. — No evidence of cervical sclerites has been found. The only suggestion of such structures is a slight thickening of the connecting membrane in the gular region, which in certain species is of sufficient size to warrant attention. On the whole the membranous connection between head and prothorax is remarkably thin and easily ruptured, and shows nothing that could be considered as intersegmentalia or could represent the « microthorax » of Verhoeff (1902).

The notum of the prothorax shows so much variation throughout the family that no general discussion of it can be attempted. The peculiarities of this region represent by far the most striking and easily recognized characters of the Membracidæ. This part of the prothorax is usually expanded into a more or less irregular plate, which covers the entire meso- and metanotum, often the entire thorax, and in some cases the abdomen as well, and bears on its surface a wide variety of processes extending to form most grotesque and bizarre structures. A discussion of such variations would be merely an endless catalogue, and is of course not to be attempted. Apparently the pronotal structures have no anatomical significance and are merely hollow extensions of the chitinized wall, raised high above the basal membrane which represents the normal body outline. Moreover, extended experiments clearly indicate that these structures are not involved in any way with any of the physiological processes of the insect. In fact, in many instances, the insects seem to fare better without them than with them. But whether or not they have any functional value, these pronotal developments are a boon to the writer of descriptions since they lend themselves so well to diagnosis and are apparently quite constant, both as generic and specific characters, and some apply, at least as secondary characters, to each subfamily. It may be noted in this respect that the pronotum tends to develop in four principal directions — posteriorly, anteriorly, dorsally and from the humeral angles. These four great types of development may be found in various stages of enlargement throughout the family, and on them are based many attempts of subdivision into subfamilies, tribes and genera. Modifications and combinations of these types are of course common, and in some groups it is difficult to decide which type is dominant.

By far the commonest of these types is the development posteriorly, to cover the meso- and metanotum and often the entire body of the insect. This posterior extension is found in so large a proportion of the forms that it appears to be a sort of foundation structure on which the other types of development are built, and is apparently one of the most generalized of the prothoracic processes. It may vary from a perfectly simple short prong to a long ornate projection often branched, extravagantly decorated with barbs, spines, bulbs, and ridges. So constant and so important is this posterior process that it has been made the character on which the subf. *Centrotinæ* is separated. All forms that have the posterior process wanting or so poorly developed that the scutellum is distinct — and it would seem that the development of the scutellum increases as that of the posterior process decreases — have been placed in this subfamily, which as a result has received a rather heterogeneous collection of genera. In generic and specific diagnoses the pronotal structures have been more generally used than any other characters shown in the family. This is true for the posterior process, the size and shape of the humeral angles, the character of the suprahumeral horns, the structure of the dorsal humps and spines and the extent of the median carina. This is to be expected, from the fact that these structures are very prominent and quickly noted. Moreover, they are on the whole reliable and of much value.

It would be impracticable to attempt to indicate the great number of ways in which these structures may vary. It would seem, however, from the examination of all of the genera in the family and

of an enormous number of species, that the posterior structures are inclined to be more constant than the anterior; the posterior process, for this reason, is found to be available as a generic character, while the more variable dorsal and suprahumeral structures are suitable for the separation of species.

The sclerites of the prothorax are not complicated. The pleuron is joined directly to the notum without intervening sclerites. Two distinct lateral sclerites are found, the episternum and the epimeron. The notum projects downward between these sclerites in a triangular extension, the cephalic margin of which is hollowed out to form a fossa for the eye. Both episternum and epimeron are roughly triangular in shape as seen from a side view, the apex of the triangle pointing upward and the base forming part of the coxal cavity. Neither sclerite is subdivided but the episternum in some forms shows a slight indentation at the cephalo-ventral margin which suggests a coalescence. The pleural suture is not prominent, and is very short since the prolongation of the notum in this region forms a separating ridge which extends almost to the lateral margin of the segment. In certain foliaceous forms, as represented for example in many species of the *Membracinæ*, this part of the lateral notum is inclined to be more or less swollen or flattened and truncate at its distal extremity. This is a dependable character, but is unnecessary for systematic diagnosis since other more easily distinguished characters are always present with it. In the rather remarkable genus *Oxyrhachis* the lateral margin of the pronotum is produced in an extended tooth, a character peculiar to the genus and important as a distinctive taxonomic structure. Just below the cephalic end of the episternum is found a triangular trochantin. This piece likewise is a single sclerite without evidence of subdivision. The sternum of the prothorax consists of a single transverse bar extending between the coxal cavities. Dorsally this sclerite is smooth and articulates with the posterior margin of the head. Ventrally the sternum is irregular in shape but in the simpler forms is trilobed, the central lobe projecting downward farther than the lobe on either side.

The Mesothorax. — The mesothorax is intimately connected with the metathorax and its dorsal surface is usually completely hidden by the posterior process of the prothorax. The sclerites of the pleura, however, may be distinguished in the mature insect and their extent and position readily verified in prepared material. The notum of the mesothorax shows two distinct types, according to whether the scutellum is or is not developed into a posterior prolongation. In by far the greater number of species of *Membracidæ* the scutellum is simple, rounded, and not at all extended posteriorly; in a smaller number it is prolonged into a strong prong or thorn, which shows a wide range of shapes and positions. As has been noted, this difference serves as a distinction between the subf. *Centrotinæ* and the other subfamilies. While this is a valuable and reliable character, it is unfortunate that it must be chosen as a primary distinctive structure of so large a group as a subfamily, since its determination often necessitates the destruction of the specimen.

The mesonotum usually shows three rather distinct areas, but these areas are apparently not separate sclerites since from the earliest nymphal stages they are evidently fused. In the adult, however, the regions are set off from one another by infoldings, or grooves, which may warrant the application of the usual names to these parts. The scutum is uniformly smooth, poorly developed and weakly chitinized. Being covered by the pronotum it is not in reality an external sclerite at all and is not functional as far as protection is concerned. The scutellum when present forms the second region of the mesonotum, and, as been often noted, develops to form a thick, heavy process; when undeveloped, the scutellar region is indicated by a mere transverse fold. Both scutum and scutellum are often entirely membranous. Posterior to the scutellum is a third area, separated from the scutellum by a narrow band of connective tissue. This is probably homologous with the « pseudonotum » as described by Snodgrass (1909). Snodgrass has found that in certain Hemiptera the mesopseudonotum

is absent ; but this judgment is based on the study of Heteroptera only, and the *Membracidæ* are apparently representative of a different type of notal structure. In the more distinct forms this pseudonotum or postnotum is connected to the scutellum by one or more chitinized bridges, breaking the connecting membrane up into a series of lacunæ. In two subfamilies, the *Membracinæ* and the *Darninæ*, an indication of a postphragma is found. This appears as an extra fold of the mesonotum, posterior to the pseudonotum, membranous and irregular but of considerable size and fairly constant. Only one wing process is found, this being the posterior. The anterior process is barely indicated in a few forms by a thickening or doubling of the lateral margin of the scutum at its extreme ventro-caudal angle.

The pleuron of the mesothorax is more or less turned under the lateral margin of the notum, forming part of the ventral body wall. The episternum is a single irregular sclerite, closely fused with the lateral notum in the mature insect but separated by the anteriorly extended wing cavity in the nymph. The distal (ventral) extremity is produced into the sternal region. The caudo-ventral margin forms the upper edge of the mesocoxal cavity. In certain forms of the subf. *Membracinæ* the episternum seems to be divided by a transverse suture across its lower third. In this subfamily, also, the entire episternum is elevated so that it forms part of the articulatory surface of the wing. In the other subfamilies the episternum is crowded downward, and the produced notum serves as both the dorsal and the ventral margin of the wing cavity at its anterior end and only braces the wing at the posterior extremity of this cavity. Just cephalad of the episternum is a well-developed spiracle situated in the intersegmental membrane.

The epimeron consists of two distinct sclerites. The larger is roughly subquadrangular and joins the notum cephalo-dorsad and the episternum cephalo-ventrad. The second is a small triangular piece attached to the dorso-caudal margin of the first and no doubt originating as part of that sclerite. In the nymphal exoskeleton the suture between these two sclerites is indicated but not pronounced. The dorsal margins of the two epimeral sclerites form the larger part of the lower margin of the wing cavity, while the ventral margin of the anterior sclerite forms part of the dorsal-caudal boundary of the coxal cavity. In general it would appear that both the pleural sclerites of the *Membracidæ* tend toward subdivision. This would agree with the « anepimeron and katepimeron » and the « anepisternum and katepisternum » of Crampton (1909), but the homologies are not clear if that author's terminology limits the division to « upper » and « lower » regions. No paraptera of any description have been found. A much-wrinkled connecting membrane at the anterior base of the wing may represent an episternal parapterum or preparapterum, but there seems to be no indication of epimeral paraptera or postparaptera. The basal wing membranes are not thickened and certainly not chitinized. Directly ventrad of the episternum is a small but well-defined trochantin. This sclerite is roughly triangular in shape, with the base against the episternum and the apex extending cephalo-ventrad to form part of the ventral margin of the coxal cavity.

The sternum of the mesothorax indicates by its sculpture a development from three distinct sclerites, but even in the nymphal forms these sclerites are not clearly distinguished. For the sake of convenience in description, the areas may be given the usual terms of presternum, sternum and sternellum, although it is not at all certain that the regions so designated are strictly homologous with the same sclerites in other insects. The entire sternum is roughly shield-shaped and in the mature insect shows an anterior fold, a central plate, and a rather distinct posterior piece consisting of a thin arm partly encircling the coxal cavity on each side of a lobed central extension. The presternum is very indistinctly set off from the sternum, and indeed in very few cases can the faint lateral lines that are believed to represent sutures be determined. The sclerite can be distinguished, however, by the ventral lobe which is produced downward just behind the presternum. The central sternum is a flat,

irregular plate fused with the presternum anteriorly and extending almost to the coxal cavities posteriorly. Its lateral margins unite with the ventral edges of the episterna. The sternellum is always more or less distinct. Its lateral arms form the anterior edge of the coxal cavities and its central disk separates these cavities. The central disk often bears a median protuberance or tooth, which extends directly ventrad. The coxal cavities are not completely closed by the sternal plates of the mesothorax. Because of the fact that the notum of this segment projects farther cephalad than the anterior line of the sternum, and because the pleural sclerites are turned under the overhanging edge of the lateral margin of the notum, a strictly ventral view of the mesothorax shows much more than the sternum. No other segment of the thorax is so well developed ventrally as the mesothorax, and no other shows any indication of subdivision in the sternum.

The Metathorax. — The metathorax is a narrow segment closely fused with the mesothorax but weakly joined to the abdomen. In general structure it conforms to the preceding segment but none of the areas are so well developed. The notum, as in the mesothorax, is an arched saddle-shaped sclerite forming the entire dorsal surface of the segment. No subdivisions have been found and the entire piece is relatively smooth. The metanotum is more strongly chitinized than the mesonotum, probably due to the fact that this segment is less protected by the pronotum in most forms. The lateral extremities of the sclerite are slightly bent outward and bear two wing processes, an anterior notal wing process and a posterior notal wing process. Of these the anterior is the better developed. The pleuron consists of an episternum and an epimeron, homologous to those of the mesothorax but differing in position with reference to the body axis. In the metathorax the sclerites appear to be twisted out of position, so that instead of being side by side, as in the normal condition, they are in an oblique line, with the episternum clearly below the epimeron and the pleural suture extending more or less ventro-caudad rather than perpendicularly. The pleural sclerites are distinctly set off from the metanotum by the wing cavity, the only connection being the interscleritic membrane. The metathorax agrees with the mesothorax in showing no traces of paraptera. It would appear that one of the distinctive structural characters of the family is the absence of these supporting sclerites. The episternum is subquadrangular and inclined to be prolonged at its ventral angle. In certain forms of the sf. *Membracinæ* a small sclerite, apparently derived from the episternum, is found just cephalad of this sclerite, but this has been noted in only a few species even of that subfamily. A divided episternum, however, would not be an unnatural condition, as evidenced by the structure of the mesothorax. The epimeron is distinctly divided into two sclerites, the larger being cephalo-ventrad of the smaller. Aside from a slight shifting in position throughout the subfamilies, the epimeron is a constant and uniform structure. It may be mentioned that the pleura of both the meso- and metathorax are much inclined to pubescence in the *Membracidæ*. In certain genera of the *Centrotinæ* this region is usually covered also with a hairy white excrescence, which in the adult insect completely hides all anatomical structures. These white tomentose patches are remarkably persistent and do not rub off easily. They have been used, in fact, and apparently with success, as systematic characters, and are very distinctive in certain species. The nature and function of the deposit is unknown, but its presence in many forms entirely precludes the use of scleritic structure for taxonomic purposes. This same woolly covering, described by various authors in various terms but often designated as « cretaceously sericeous », is also commonly found on the exposed scutellum. In fresh specimens it is generally snow-white in color and is a most attractive decoration. In the genus *Oxyrhachis* both the meso- and the metapleura are extended to form short, blunt teeth. Such developments are, however, rare in the family.

A striking development of the pleura which is characteristic of the Membracidæ is found in the mesothoracic episternum. This is the episternal hook. This hook arises from near the upper

anterior margin of the sclerite and projects forward, engaging the posterior margin of the pronotum. It is found in the great majority of the genera of the family, but not in all. Its function would appear to be the interlocking of the pro- and mesothorax by an external mechanical means. It has been noted that internally these segments are but weakly joined, the intersegmental membrane being fragile and easily torn. The shape and position of the hook vary but little, and in all cases the process is close to the wing base. It has not been found to vary within a genus.

The trochantin of the metathorax is much larger than this sclerite in either of the other two thoracic segments. It shows the same general shape as in the other segments — an elongated wedge or triangle — but is longer, wider, and thicker. It forms part of the lateral margin of the coxal cavity and joins the cephalic bar of the sternum at its lateral extremity. No evidence has been found of either a transverse or a longitudinal division of this sclerite, and nothing that would suggest the « trochantinus major » and the « trochantinus minor » which Crampton (1909) has found in other orders of insects.

In a very few instances small thickenings have been found in the coxal region which suggest vestigial sclerites. So rare, however, have been such conditions that they cannot be said to be of importance in the family. In by far the larger number of forms the sclerites have been only of the number previously mentioned and no accessory trochantinal or accessory coxal sclerites are present. Neither does there appear to be any structure of a similar nature concealed by or hidden within the coxæ, as has been shown to be the case in some other hexapods. The metathoracic spiracle is located just cephalad of the upper angle of the episternum, in about the same relative position as that of the preceding segment. It will be seen that only two spiracles are found on each lateral surface of the thorax. Careful examination of the prothorax has been made for a like structure, with negative results. A prominent spiracle is located just caudad of the metathoracic pleuron and superficially appears to be a part of that segment; but, as will be noted later, this properly belongs to the first abdominal segment.

The sternum of the metathorax is much smaller than that of the mesothorax, and, though its configuration suggests that it may be composed of two or more sclerites, absolutely no evidence has been found to bear out such an inference. Neither the nymphal nor the adult forms show sutures indicative of such development, and it seems necessary to discuss this part of the segment as a single

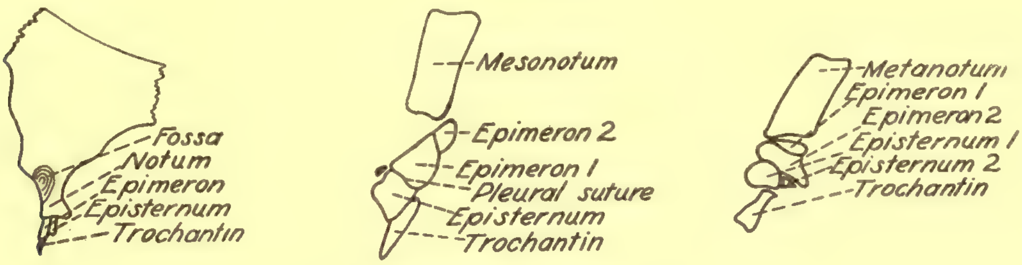


FIG. 3. — **Thoracic structures**

sclerite. In shape the metasternum is roughly a transverse « H », the openings at the end of the figure representing the coxal cavities. The sclerite thus encloses the mesal curve and one-half of the cephalic and caudal margins of these cavities. The cephalic bar is slightly swollen ventrad, the middle connection is flat, and the caudal bar, again, is somewhat swollen. As in the case of the preceding segment, a strictly ventral aspect of the metathorax shows more than the sternum. The lateral edge of the body is formed, not by a flat, perpendicular pleural wall, but by the junction of the upper pleuron with the lateral ventral margin of the metanotum. The ventral view, therefore, shows the pleura as far dorsad as the wings.

The thoracic structures described in the preceding paragraphs are shown in the accompanying diagram.

The Wings. — The structure of the wings, their position, and the sclerites concerned in their attachments have been discussed in a previous report by the writer (1917a) and the homologies of the wing veins have also been made the subject of a special paper (1913) so that these matters need not be discussed in further detail except to call attention to a few particular points which have to do with phylogeny and taxonomy.

It should be remembered that in the Homoptera the wings are folded against the body with the costal margin downward. This makes an apparent, but not a real, reverse of the normal position in insects. Theoretically the wing of an insect may be considered as in a plane projecting horizontally from the pleural wall of the body, with the costal region extending directly cephalad. Supported in such a position, the anterior part of the articulating surface of the wing is attached to the anterior wing process of the notum and the upper wing process of the episternum, while the posterior surface is attached to the posterior process of the notum and the postparapterum of the epimeron. Actually, however, in most orders of insects the plane of the wing is more likely to be tilted upward, the costal margin pointing slightly dorso-cephalad and articulating chiefly with the anterior notal process, while the anal region extends ventro-caudad and finds its chief connection at the pleural wing process between the episternum and the epimeron.

In the *Membracidæ*, on the other hand, the costal margin of the wing appears on superficial examination to be attached to the upper extremity of the episternum — in fact it actually lies in a groove in this sclerite when at rest — while the anal area is clearly folded against the lower margin of the notum. This position, which is not peculiar to the wings of the *Membracidæ* but is found in most families of the Homoptera, causes a twisting and shifting of the parts of the wing base which requires special attention. If the theoretical position as above described is considered the normal, the position of the membracid wing may be conceived by imagining that the normal wing is first folded directly downward and then bent backward until its long axis is parallel with the longitudinal axis of the body. This shifting of position has resulted in a migration of basal structures which renders difficult the homologizing of parts. In spite of the twisting, however, it is possible to reconcile to a large extent the shifted attachments as shown in this family with the commoner interpretation of the wing base in other insects. It has been noted, in the discussion of the pleural and tergal sclerites, that in the *Membracidæ* no anterior wing process could be determined on the notum, while the posterior process was prominent. This is probably explained by the fact that the anterior angle of the wing base has migrated away from its normal position, making the anterior process unnecessary; while the posterior angle has moved upward, increasing the musculature of the posterior region. The principal point of attachment of the fore wing is a long, curved, partly chitinized cord, fused along the costal and middle part of the wing base (the cephalo-ventral margin when in normal position) and extending between the notum and the episternum into the body cavity, where it is connected with the wing muscles. This cord supports and probably directs the movement of that part of the wing which accommodates the bases of the costal, subcostal, radial, median and cubital veins. It is rather sharply set off, however, from the tissue of the wing proper by a deep constriction. When the wing is separated from the body it usually breaks along this line. The extreme cephalic costal angle is supported by the dorsal margin of the mesothoracic episternum. When at rest and folded against the body, the basal fifth or sixth of the costal margin is supported by the metathoracic episternum, which is hollowed out to receive it. This deep groove is indeed very characteristic of the family.

The chitinized portions of the wing base seem to show three weakly developed axillary sclerites

but their homologies may be questioned. The cephalic costal angle is swollen into a protuberance, or tooth, which is probably homologous with the tegula of other insects. It is usually pubescent, sometimes hairy, but is not chitinized. The basal region of the fore wing is much given to the development of barbs, or hooks, which in some cases interlock with one another or with the notum and in other cases are isolated and seem to have no supporting or bracing function. These hooks have never been used as taxonomic characters, but there seems to be no reason why they should not be so used since they are apparently constant within a species and differ in appearance within a genus.

The structures mentioned above are diagrammatically indicated in the accompanying text figure :

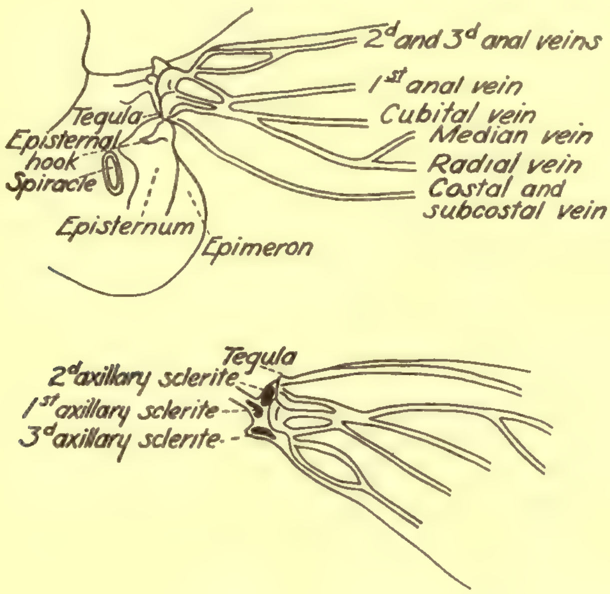


FIG. 4. — **Basal structures of membracid fore wing**

The basal and costal areas of the wing are inclined to be coriaceous, punctured, pubescent or opaque, and these features are commonly used as diagnostic characters. In one subfamily, the *Tragopinæ*, the fore wings are so dense and coriaceous that the veins are scarcely distinguishable and this character is generally given as distinctive of the subfamily.

The hind wing is similar to the fore wing in position and attachment. It rests partly on the dorso-caudal extremity of the metathoracic episternum, and is attached by strong muscles which extend into the body cavity just below the metanotum. The anal lobe is folded under the remainder of the anal area when the insect is at rest. At the base of the anal region is a strong hook, which is generally constant in appearance but the function of which is not evident. The caudal margin of the metanotum shows in some species an overlapping flap which engages the wing when folded. No axillary sclerites have been found in the hind wing. From this fact it might be well to question the correctness of the interpretation of the structures described in the fore wing as axillaries. There is little doubt that the hind wing in the *Membracidæ* is more generalized than the fore wing, and one would naturally expect to find in the more generalized wing the better evidence of primitive structures. The fact that such structures cannot be found would indicate either that the axillaries are not primitive in the family or that the thickenings in the fore wing are not true axillaries. The latter theory is perfectly tenable since their validity as chitinized sclerites may well be doubted. It is true that the full complement of axillaries has been recorded for other Hemiptera by Snodgrass (1909), but here again the forms studied

belonged to the Heteroptera. A study of the alary and pedal apparatus would seem to indicate that the relationship between the Heteroptera and the Homoptera may not be so close in respect to locomotion as in other respects, and the presence of the sclerites in the former suborder need not necessarily presuppose their existence in the latter.

Aside from the basal region, the wings of the *Membracidæ* are usually membranous. It has been noted that in the small subf. *Tragopinæ* this is not the case, but this subfamily is very limited in representatives. In general the wing consists of a distinct corium and clavus, the claval suture occurring along the first anal vein. Both pairs of wings are well developed and expanded. Both are characterized by having a strongly scalloped margin outlined by the ends of the veins, and in most forms a distinct terminal membrane beyond this margin. The extent of this marginal membrane or limbus is considered a good taxonomic character. The wings may be entirely, partly, or not at all concealed by the pronotum, a variation which has also proved of value to systematists and on which are based many keys and tables to genera and tribes.

Other general characters of the wings that are used in taxonomic work are the length as compared with each other, with the abdomen, and with the posterior process, the shape of the extremities, the colors and markings and the venation. Of these, the last-named character is by far the most valuable. This is especially true of the hind wings, which are by far the more constant and apparently the more generalized. Unfortunately the hind wings are always covered by the fore wings and are usually much shorter than the fore wings, so that their examination necessitates the relaxing of the specimen. Moreover, in many cases both wings are entirely hidden under the pronotum. A more or less superficial character of the wing veins, but one which is believed to be of value at least for specific distinction, is the presence of punctures along their courses. In some species each vein is bordered by a double row of such punctures and often by corresponding rows of bristles.

The Legs. — The legs in the *Membracidæ* show some interesting features structurally and are of importance taxonomically. All three pairs of legs are normal in such general points as the number, position, relative size of the segments, and the attachment to the torso. The individual segments, however, are much inclined to variation throughout the family. The legs increase in length from before backward in practically all of the genera, but in a few the first and second pairs are about equal in length. The hind legs are always the longest. It is possible that the relative leg lengths might be of value in systematic diagnosis, but the character would be a very hard one to determine in ordinary mounted material because of the fact that the legs are so often tightly folded against the lower part of the body. In life the front legs usually point forward and the second and third pairs backward. The front legs, in fact, are attached so closely to the head as to completely hide the mouthparts and the gular regions when the insect is at rest in its natural position. All of the legs, particularly the posterior pair, are very well developed, as would be expected from the jumping habits of the insects. The basal parts are heavy and swollen and cover most of the ventral surface of the thorax. The legs are much inclined to pubescence and often bear spines.

The coxæ are heavy and stout. The posterior pair are usually the largest and closest together, and show the greatest tendency toward peculiar development. Each coxa consists of a flattened plate which fills up the coxal cavity, and a distal projection to which the trochanter is articulated. This distal projection is often bent at an angle to the other two-thirds of the segment and projects ventrad. Between the body of the coxa and its distal end is found in some cases a constriction or neck. The articulatory surface is generally swollen and apparently distorted. In a large number of species the lateral end of the middle and hind coxæ is distinctly cut off, leaving a triangular piece laterad of the

body of the segment but in the coxal cavity. This separate piece is believed to be a subdivision of the coxa and originally a part of that sclerite.

The trochanter is normally an elbow-shaped segment attached to the ventro-mesal extremity of the coxa. The proximal half projects directly ventrad, while the distal half turns ventro-mesad. The segment is freely movable in the *Membracidæ*, and the articulation with the coxa is comparatively weak. The coxa-trochanter joint, however, is often strengthened by overlapping hooks or projections. No special modifications are found in the trochanters of the first or the second pairs of legs, but in those of the hind legs most interesting developments may be found. The commonest variation is that of general shape. In most species the segment is practically cylindrical, bent in the middle but nearly equal in diameter at each end. This shape graduates to a roughly spatulate outline in which the proximal end is much narrowed and nearly cylindrical while the distal end is broadly flattened and paddle-like. In certain species of the subf. *Membracinæ* the segment is shortened and nearly straight, the internal angle being hardly recognizable and the articulatory surfaces almost in a line with each other, giving the entire segment a spindle-shaped outline. By far the most interesting modification of the trochanter, however, and one that is extremely valuable for systematic purposes, is the development of teeth on the internal surface of the distal half. When teeth are present the distal end is expanded into a flat plate, or disk and the disk is often hollowed out in the center. The commoner type, however, is the arrangement of the teeth over the entire surface of the disk with those on the margin slightly larger than the others. The disk is often elevated to a considerable distance above the body of the trochanter, and its surface between the spines is usually pebbled or thrown up into slight nodules. From a strictly lateral view the edge of the trochanter appears merely dentate, and the opposite edges of the same disk are not uniform in number or position of the teeth. In some species the teeth are very small and cone-shaped and in almost all cases they are jet-black in color. An interesting feature in connection with the presence of the teeth is the shifting of the attachment of the femur. Ordinarily the femur is attached to the lateral end of the trochanter and extends more or less laterally from the body. When the teeth are present, the plate, or disk, that bears them is developed from the region at which the femur ordinarily articulates. This forces the base of the femur around to the mesal rather than the lateral angle, and the femur is thus forced to point farther inward or else develop a curve in its proximal end. The faces of the toothed disks of the two trochanters oppose each other when the legs are in the normal position, and if the legs are brought close together the teeth meet and interlock. No explanation has ever been offered as to the function of these teeth, and their utility is questionable. Another character that is apparently closely related to the toothed condition is found in the hairs, or bristles, which often occur on the internal face of the trochanter in many species. The fact that these bristles are borne on the same area which gives rise to the teeth in the armed forms, and that the genera in which the bristles are found are closely related to those that bear teeth, would suggest that the two forms of modification may be the response to similar orthogenetic tendencies.

The femora show the least variation of any of the leg segments in the *Membracidæ*. In shape the femur is usually club-like and often much curved. The proximal end is swollen, and the segment gradually narrows toward the distal end. The distal end is in some cases suddenly expanded to form a knob, or head, and before this is a slight constriction, or neck. The entire segment is subcylindrical, seldom flattened, and never angular. It is the largest and strongest segment of the leg and doubtless furnishes the chief power in jumping. The distal end is hollowed out to receive the end of the tibia, and usually projects slightly on either side into a plate to direct and strengthen the knee-joint. The femur is much inclined to pubescence, but in this respect it follows the general tendency of the leg as a whole and does not differ from the other segments. It seldom possesses a color pattern, even in gaudily decorated species.

The tibia has attracted more attention in the *Membracidæ* than any other segment of the leg. This is because in certain forms of the family this segment is broadly foliaceous and very striking in appearance. On the basis of this peculiarity the genus *Membracis*, the type genus of the family, was early separated (Fabricius 1775), and the character has since stood as the distinguishing mark of the subf. *Membracinæ*, which has been built up around this genus. The character in itself, however, is not sufficient to distinguish the subfamily, since a number of genera of the subf. *Centrotinæ* show the same flattened, leaf-like tibiæ. It is only valid when considered in connection with the covered scutellum. The foliaceous tibia as represented in the *Membracinæ*, however, shows a decided variation in the three pairs of legs; in the first and second pairs the tibiæ are broadly foliaceous, often three times as wide as the femur, and generally smooth and without spines or bristles, while in the posterior pair of legs the tibiæ are proportionally much narrower and less leaf-like, and are usually armed with strong teeth or spines. In the *Centrotinæ*, on the other hand, the foliaceous forms show all three pairs of tibiæ equally expanded, the hind pair often as broad as either of the two preceding pairs, and the hind tibia shows a strong central rod or mid-rib which is quite characteristic of the subfamily. The tibiæ show color patterns and various markings when the legs are at all decorated and the segments are usually pubescent or hairy.

The tarsus is trimerous and comparatively uniform throughout the family. Of the three segments the middle one is usually the shortest; the first and last vary with the leg, the first being the longest in the hind leg and the last being the longest in the first two pairs of legs. Each segment is somewhat club-shaped, narrower at its proximal and swollen at its distal end. At the distal ends the segments are not evenly truncate but are much extended on the underside and bilobed above. Each tarsus bears a strong claw, distinctly articulated with the last segment. Each claw is heavy at its base and becomes gradually acuminate to a fine, sharp point. No pulvillus is present, but most forms show a broad, irregular membrane below each half of the claw. The claw is attached to the last tarsal segment by a strong tendon, which is slightly chitinized at its junction with the lower base of the claw and is conspicuous as a heavy cord. The comparative length of the tarsal segments varies considerably and this feature may be used as a specific character but it is of doubtful value. Usually the segments increase in length from in front backward, the hind tarsi being the longest. In most cases the first and second pairs of legs show this difference only slightly, while the hind tarsi are easily seen to be much longer than the others. A notable exception to this occurs in the subf. *Platycotinæ*, in which the hind tarsi are very much shorter than the anterior or the intermediate ones. This is the character on which the forms of this subfamily are separated and it is entirely reliable. The relative smallness of the posterior tarsi in these forms is made more conspicuous because of the fact that the posterior tibiæ are much swollen at their distal ends, making the comparison between the tibiæ and the tarsal segments all the more noticeable. It is interesting to observe that when any tarsal variation occurs in the *Membracidæ* it appears in the hind leg rather than in either of the others. The tarsi are much given to pubescence and hairiness. In some species this development is so remarkable as to be used in diagnosis. In the subf. *Centrotinæ* the bristles, spines and hairs are so numerous in many species as to completely hide the other structural characters of the tarsus. Aside from its use as the distinguishing character of the subf. *Platycotinæ*, the tarsus has been little used for systematic purposes in the study of the *Membracidæ*. There is little doubt but that enough variation exists to warrant more careful consideration of this part of the leg, and a further study of the hind tarsus may yield good taxonomic data.

The Abdomen. — The abdomen consists normally of eleven segments, of which the first is only partially developed and the last two are more or less modified. The arrangement and number of segments is best shown in the nymph, in which the anal region is represented by a series of telescoping tubes. In this stage the first segment is hidden under the metathorax and the last is poorly

developed, but the others are evident. In the adult the abdomen of the insect is so modified in the separate sexes as to require separate descriptions.

In general, each segment from the second to the seventh, inclusive, is ring-like in form and consists of a distinct tergum, pleuron and sternum. The first segment consists of a tergum only and this sclerite is only partially developed, the lateral extremities being shortened. The abdominal terga are long, horse-shoe shaped sclerites covering not only the dorsum but most of the lateral areas. They end in a rather sharp angle at the junction of the pleura. The pleura are short and subrectangular, and are located on the ventral rather than the lateral part of the abdomen. The first eight abdominal pleura bear spiracles in the extreme cephalic mesal angle of the sclerite. The spiracle for the first segment is, indeed, not in the chitinized part of the sclerite at all, but is located in the membrane between this sclerite and the metathorax in such a position that it appears as a part of the latter segment. The spiracle of the second segment, likewise, is usually found at the very edge of the sclerite if not actually in the membrane. The sterna are uniform in the anterior region of the abdomen but are modified in the posterior region in the two sexes. Each sternum is typically a long curved plate forming the ventral floor of the segment and connecting the pleura of each side. Usually it is smooth and unsculptured. The abdomen is much thicker at the anterior than at the posterior end, and for that reason the anterior sterna are the longest and widest.

From an external view of the complete insect very little of the abdomen is visible. The projecting posterior process of the pronotum hides the dorsal surface, while the two pairs of wings folded tightly against the lateral regions conceal these areas. For these reasons the dorsal and lateral parts of the abdomen are not suited for taxonomic study. It is doubtful, however, whether these areas would offer characters of value even if they were plainly visible. The color of the abdomen is usually uniform and agrees with the general color of the remainder of the body. The under-surface is generally darker than the upper, and the segments are in some cases bordered with a lighter shade than that of the ground color. The anterior end of the abdomen is inclined to be of a lighter hue than the posterior, and all the segments are likely to vary in this respect within a species. The entire abdomen, and particularly the ventral surface, is much given to pubescence; this is very noticeable in certain forms along the pleural sclerites. Occasionally the white tomentose patches are found on the abdomen as on the thorax. When present they are usually on the lateral areas of the first three segments and show through the basal part of the wing. The terga are often punctate, but this condition is seldom seen on any part of the abdomen, and even on the terga the punctures are much less developed than on the head or the thorax.

The apical segment of the abdomen of the adult can be discussed only in relation to the different sexes, since the modifications in the sclerites caused by the development of the genital organs are quite distinct in the male and the female.

The Female : In the female the sterna of segments two to five inclusive are comparatively uniform, each being a broad, flat, slighty curved plate extending across the abdomen. The sixth sternum is indented at its median posterior margin, and the entire ventral part of the segment is usually much recurved. The sternum of the seventh segment is deeply notched in its median part to enclose the rounded base of the ovipositor. This is the last entire segment in the female abdomen and its shape varies greatly according to the type of ovipositor surrounded. The structure of this sternum has been successfully used as a specific character in many genera. In some cases the sternum is so deeply indented that from an external view it appears as two separate sclerites. The eighth segment may or may not show a sternum, but if one is present it is reduced to a small triangular sclerite on either side of the ovipositor and does not extend entirely across the abdomen. In most cases

no sternum occurs in this segment. The ninth abdominal segment consists only of the tergum, but this sclerite is much enlarged and makes up the larger part of the posterior end of the body. This segment is not represented by a pleuron in any species dissected and no spiracle is present to suggest such a structure. The sclerite bends around to form most of the body wall. The free ventral edges do not meet, but the space between them is occupied by the styles of the ovipositor. This segment is most inclined to show pubescence and well developed hairs, and is the most conspicuous part of the female abdomen. The tenth and eleventh segments are more or less vestigial and are usually hidden under the posterior projection of the ninth.

The ovipositor consists of three pairs of styles. The outer pair is the longest and incloses the middle pair, which in turn surrounds the inner. The outer styles are roughly forceps-shaped, narrowed at the base, wide and flat at the center, and hollowed out on the inner surface to form a spoon, or paddle, the excavated part containing the middle styles. The edges are smooth and the tips pointed. The outer styles project below and beyond the ninth abdominal segment and are plainly visible from an external view of the insect. They are often densely pubescent, but seldom punctate. They are tightly closed except during oviposition and mating, and form a smooth, rounded, ventral surface for the apical end of the abdomen. The middle styles are slightly smaller, narrower, and shorter than the outer styles, and fit snugly into these. The base of the middle pair is flattened and expanded to form an articulatory joint. The shafts of the styles are doubly curved, the edges are smooth, and the extremities are very sharp. Like the outer styles, the middle pair are close together when not in use. The inner styles are again forceps-shaped, the shafts being narrow and about equal in width throughout their length. The lateral and ventral margins of these styles are smooth, but the dorsal edge is thrown up into teeth, or nodules, of which there are from two to five on each style. Since the inner styles are located deeply within the other two pairs, they are not visible except on dissection.

The abdominal structures of the female show few characters suitable for taxonomic work. Aside from the shape of the last sternum, which has already been discussed, no parts of the abdomen of this sex have been used by systematic workers in the family for purposes of classification.

The Male: The abdomen of the male differs from that of the female chiefly in the structure of the apical areas. As a whole the abdomen of the male is flatter, shorter, less robust, generally darker in color, and more inclined to pubescence, and the segments are more closely telescoped. The extremity is more regularly and narrowly pointed. The tenth and eleventh terga are usually quite distinct and often project some distance beyond the ninth. The ninth segment is modified, but in a different way from that seen in the female. In the female this segment shows no pleuron or sternum, but the greatly enlarged tergum folds around the entire abdomen; in the male all the parts of the segment are present, the pleura projecting as separate sclerites on each side or joined below, and the sternum produced and curved upward at the extremity. The first segment is modified as in the female, but the median segments are normal.

No modifications of the abdomen for the production of sound, such as the timbal and mirror of the cicada, are present. So far as is known, no species of membracid has any sort of sound-producing apparatus and the only noise made in the field is the sharp whir of the wings in flight.

The Membracidæ are not characterized by the noxious odors common to many forms of Hemiptera. The spiracles were confused with supposed stink glands by Buckton (1903), but no signs of the latter structures are shown in histological preparations.

The male genitalia, while comparatively simple in structure, are extremely interesting and are well deserving of more serious study than has been given to them. Occasional attempts have been

made to use the male genitalia for systematic purposes but with little success. It is not unreasonable to believe, however, that these structures, which have proved of so much value in other groups of insects, should be equally distinctive in the *Membracidæ* if the characters are patiently diagnosed for a large number of genera. It may naturally be supposed that sexual organs undergo less change when the insects are forced into new conditions and environments than do motor or protective structures, and, being less plastic, would preserve their characters and readily lend themselves to generic classifications. The organs have become modified in form and have developed various types of claspers, styles and prongs, but the necessity of retaining the function of the organs has kept these modifications within bounds.

The male genitalia are shown diagrammatically in Text Figure 5, in which the first outline represents the parts in their normal position, the second shows the same parts as dissected and spread apart, and the third shows the lateral aspects.

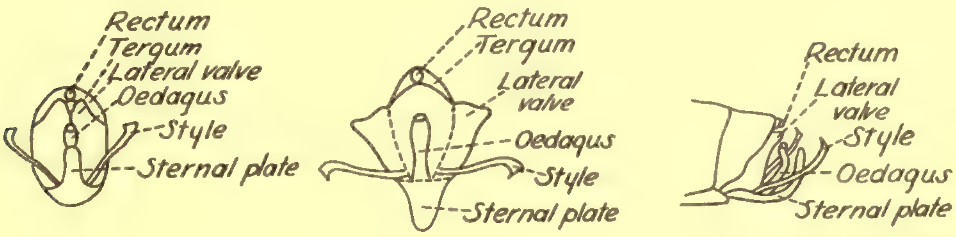


FIG. 5. — **The male genitalia**

The tergum of the ninth abdominal segment overlaps and partially surrounds the rectum, which is located at the extreme dorsal angle of the exposed end. Below and on either side are two broad plates which are here termed, for want of a better name, the lateral valves. These are sometimes folded inward to meet each other, and sometimes they project directly caudad leaving the lower surface of the anal tube exposed. When the latter condition obtains, or when the lateral valves have been dissected away, the ventral part of the rectum is seen to consist of a somewhat chitinized plate which is probably the vestigial sternum of the tenth segment. The area below the rectum and cephalad of the valves is occupied by the intersegmental membrane. From the region between and at the base of the valves arises the œdagus. This structure is heavy and curved, extending first caudo-dorsad, and then dorso-cephalad. Near the base of the œdagus arises a pair of styles, or forceps, which usually extend outward laterally and are subject to great modification in shape. The sternal plate, which is apparently the sternum of the ninth segment, bends almost directly upward at its tip and in some species extends so far dorsad as to form a posterior wall behind the œdagus. The œdagus contains the penis, a long, white filamentous tube which is seen only on dissection.

The terga of the ninth, tenth and eleventh segments are usually visible in the male. In some cases the tenth and eleventh are hidden within the ninth, and in some cases they are projected; but in all cases they cover the anal tube and form a dorsal roof over the rectum. The ninth tergum is the only one suitable for taxonomic use, and this is best seen from a lateral view. From this aspect the

sclerite appears as a subtriangular piece extending almost to the pleural line. This tergum may project almost directly caudad so that the rectum is located very near the dorsal margin of the segment and very little of the tergum is visible from a caudal view; or it may extend well ventrad so that the rectum appears nearly in the center of the segment and a large part of the tergum shows from a caudal view as a broad, sloping roof. In some cases the entire ninth segment is so small in diameter that from a caudal view the eighth segment is visible around it. In some species the tergum is armed with teeth on each side, such teeth probably functioning in the process of copulation. Occasionally the tergum shows a process, or projection, on the median dorsal line, which is probably the remains of the nymphal spines of that region. In many cases the sclerite is pubescent, and the hairs may be developed to such an extent as to overhang and hide the rectal opening. The variation in lateral length may range from an almost complete arch to a very narrow strip extending hardly one-third of the distance toward the pleural line.

The lateral valves are always present and are of considerable importance. From their position they would appear to be modifications of the pleura of the ninth segment, but, for systematic purposes, the character most easily determined is whether they project directly caudad to continue the lateral line of the abdomen, or turn inward to meet under the rectum and form a posterior wall for the body cavity and an anterior wall before the œdagus. This is believed to be a constant and valuable generic character. In size the valves vary from narrow triangular sclerites to broad, flat plates which occupy most of the lateral surface of the segment. They are often armed with teeth, but the position of these teeth is variable. Like the terga, these sclerites are often pubescent. In general the lateral valves seem to have little protective function, since the œdagus is well caudad, and they are probably used as copulatory organs of attachment.

The œdagus, or penis sheath, is a heavy, partly chitinized covering for the penis. It is apparently of one piece and does not show the segments described for this organ in other orders of insects. In composition it is substantial enough to withstand the boiling and clearing necessary for examination under the microscope, and usually stands out well in such mounts. The œdagus seems to arise from the very base of the ninth segment, between the bases of the lateral valves and the sternal plate. Such an origin would agree with that found in certain beetles, and fairly well with the same structure in other orders. The function of the organ is undoubtedly protective, and it may be noted that practically no other protection is afforded to the penis since the entire genital chamber is so openly exposed. The œdagus itself is apparently of sufficient strength and rigidity to need no other protection, although in most other orders it is covered by some parts of the genital chamber. In shape the œdagus is uniformly curved, bending upward and forward so that its apex points toward the rectum. It varies greatly in diameter in different genera and the tip is inclined to be much modified. Often the entire organ is gradually acuminate and sharp at the extremity; again, the tip may be swollen and surmounted by a knob-like projection. Such variations may be of taxonomic importance and should at least prove valuable as supplementary characters since in many cases the tip of the œdagus is protruded in mounted insects, making the examination of the part possible.

The penis is difficult to locate except in very fresh material. On superficial examination it appears to be a long, whitish filament, its length being surprising as compared with that of the œdagus. No indication has been found homologous to the « præpenis » as described by Harnisch (1915) for certain Coleoptera, nor do there appear to be any important variations in the basal structure of the organ.

The styles, or forceps, are very apparent in the *Membracidæ* and in many forms extend far enough out of the genital chamber to make examination possible in the mounted specimen. Only one pair of

these organs is present and the relative position in the segment is comparatively uniform throughout the family. Each style arises from the lateral margin of the segment near its base and usually between the lateral valves and the sternal plate. On dissection it is seen that the base extends into the abdomen and originates in the seventh segment. The style projects almost directly caudad and sometimes slightly laterad. In shape the basal part is comparatively straight and the distal end bends upward in a gradual curve or sharply at an angle. The tip is the most inclined to variation, and may range from a sharp, needle-like point to broadly angled plates or sharply toothed hooks. Study of the process of copulation in the living insects proves the function of the styles to be that of clasping or interlocking organs, as their shape would indicate. The terminal hook or angle always turns upward and in some cases forward. In a few species examined, the styles act in conjunction with the teeth of the lateral plates in the mating process. As in the case of the œdagus, the structures of the styles offer suggestive taxonomic characters and may be found useful in a number of genera.

The sternal plate is apparently a modified abdominal sternum, but its tendency to subdivision would suggest that it may be a fused or partly fused pair of appendages. The plate originates at the base of the ninth segment and is attached to the eighth abdominal sternum. It projects first caudad and then dorsad and is the most posterior of the genital organs. It may extend only a short distance upward, or it may extend so far in this direction as to hide the other genitalia when viewed from a caudal aspect. It usually shows a division down the median line. This division may show only a slight notch, or the separation may be so apparent as to show two distinct plates; but in almost every case the two halves of the plate may be pulled apart after boiling in caustic potash, showing the real structure of the sclerite. For systematic purposes the appearance of the plate in the complete insect, rather than a theory as to its anatomical conditions, is of course of more practical importance. This can usually be best ascertained from a strictly caudal view, and the characters most easily noted are the comparative length of the plate, the shape of the upcurved part, and the amount of splitting at the tip. All these points show sufficient variation to aid in diagnosis and all are relatively constant. The sternal plate is usually pubescent and often covered with stiff, bristle-like hairs. It is freely movable and in the ralaxed specimen may be pulled far downward without injury to itself or to the remainder of the genitalia. It may often be examined by merely separating the wing tips, and for that reason is the best adapted of all the genital parts for systematic work.

On the whole the male genitalia afford good taxonomic characters. The parts are simple and easy to dissect. The relative position of the plates and the structure of the individual pieces show sufficient variation throughout the family, and are constant enough within a genus, to furnish valuable data at least to supplement the more evident characters of the exoskeleton.

INTERNAL ANATOMY

The internal anatomy of the membracid does not, on the whole, differ enough from that of other Hemiptera to warrant special discussion. The digestive system, however, shows some peculiarities. Kershaw (1913) found that in the species *Tricentrus albomaculatus* the alimentary canal showed a formation of the mid-intestine very similar to that reported by Packard (1898) for the *Psyllidæ*, with accessory organs consisting of four uriniferous tubules. The writer has found this same condition present in the genus *Gargara* and in certain other forms of the *Centrotinæ*.

By far the larger number of membracids, however, including all of the *Smiliinæ* which have been

dissected, show a much simpler form of food tube the parts of which are diagrammatically shown in the accompanying text figure.

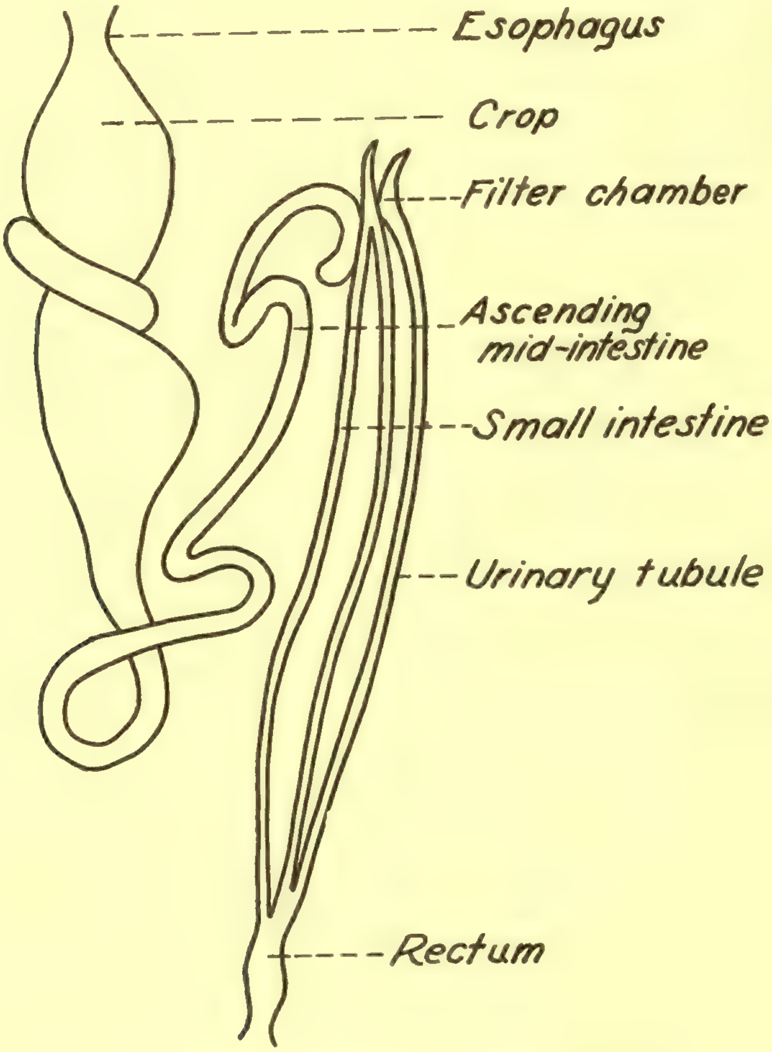


FIG. 6. — **The alimentary canal**

This type is noticeably different from that described by Kershaw particularly in the number and position of the urinary tubules. The alimentary canal is short and twisted and the various parts are strikingly distinct in size and structure. The short esophagus opens directly into the crop, which is very large and has a peculiar twist at its center. At the posterior end of the crop the canal is much narrowed to form an ascending mid-intestine, which bends abruptly anteriorly, is irregularly coiled and twisted, and extends forward as far as the center of the crop. At the end of the ascending mid-intestine is a knot from which arise two urinary tubules; each of these tubules has a blind end projecting a short distance cephalad, while the tubule itself extends along the full length of the small intestine, and joins the rectum by the side of the small intestine. From the knotted end of the mid-intestine arises the small intestine, which is very narrow in diameter and almost straight. The small intestine

opens into the swollen rectum, which connects by a smaller rectal tube to the opening in the abdomen. At the point where the mid-intestine ends and the small intestine begins, both these organs are somewhat looped and give rise to the urinary tubules. This part of the intestine has been called the filter chamber, and has been described in the *Cercopidæ* by Licent (1911); but in the type of chamber shown by that family the mid-intestine and the urinary tubules are twisted many times around one another in an enclosed part of the canal. A similar filter chamber, though not so eloborate, is described by Berlese (1909) for certain *Coccidæ*. Apparently such an arrangement of twisted intestine and nephridial organs is not uncommon in the Homoptera.

The respiratory system shows no peculiarities so far as has been observed. The spiracles have been discussed under the description of the external anatomy.

In the reproductive system the only points noted as applied particularly to the *Membracidæ* are the number of eggs found in various species in life-history studies. It may be noted in this respect that the eggs are very large in proportion to the size of the insect, and are usually all matured at about the same time.

LIFE HISTORIES

The complete life histories of very few species of *Membracidæ* have ever been reported. The writer has published (1915-20) descriptions of the life histories of a number of North American forms but no similar studies have been made of tropical species so far as the literature of the family would indicate. However, from field observations in many parts of the world, we believe that the life histories of these insects are much the same, wherever they are found, except in the matters of number of broods per year and hibernation.

In the United States most species of *Membracidæ* spend the winter in the egg stage and the first evidence of the family in the spring is the appearance of the nymphs from the winter eggs. These usually appear in the south in late March and early April while in the north some species do not hatch until July. A few species are known to winter over as adults. This is true of the species of *Stictocephala* in the south and of the species of *Entylia* and *Publilia* in all parts of the country.

In all parts of the world mating begins almost immediately after the insect reaches maturity. The position assumed in the process is the one not unusual in Hemiptera, with the caudal extremities together and the heads in opposite directions. The insects are very sluggish at this time and seldom move unless disturbed. If molested they fall to the ground, not, however, becoming detached from each other. If movement takes place during copulation, the female generally moves forward, dragging the male backward behind her. The process has been timed from five minutes to one hour in different species. No forms have been observed in flight while in copula. During copulation the styles of the male function as clasping organs and the ovipositor of the female is drawn downward and forward. In the temperate regions species that have more than one brood a year show more or less well defined mating seasons during the summer; but in the tropics the development of nymphs is so irregular that the broods overlap and mating may be observed at practically all times throughout the year.

There are a number of rather distinct types of oviposition, as regards both the location of the eggs and the mechanics of the process. The eggs are most commonly deposited under the bark of the younger twigs. In most cases a single narrow slit is made in the bark, the ovipositor not reaching the cambium or, if reaching it, slitting down on one side of the twig between the bark and the wood and not penetrating the xylem. In this slit the eggs are deposited and the bark springs back into place over

them. In this method little damage is done to the host, as the injury is not a severe one and quickly heals. In another type of oviposition, the insect makes a curved slit in the bark and another close beside it in a series of spiral incisions around the stem. This affects the plant more seriously as in some cases the wounds fail to close which not only interferes with growth but affords entrance for other insects and for fungi, and in other cases small stems may be so punctured that they break off at the point of injury. A number of species deposit in the buds of the host. In this type of oviposition the eggs are laid just beneath the outer bud scales, and the nymphs emerge at the time when these scales are first opening. In a few cases the eggs are not entirely covered but project slightly out of the bud tissue. This method of oviposition has but little injurious effect on the host, since the outer bud scale, being entirely protective, may be damaged without injuring the plant. In the case of fruit buds the injury may be more serious, but in no case has it appeared to an extent great enough to be considered important. A few species lay their eggs in the leaves. Usually the under side of the leaf is chosen for oviposition and the eggs are generally placed in two rows, one on each side of the midrib. The egg is seldom entirely within the leaf but the tip is plainly visible. A number of species choose the axil of the leaf for oviposition and a few are known to oviposit in the roots or in the base of the stem just below the surface of the ground.

The mechanics of oviposition differ decidedly in various species. In most cases the ovipositor is extended at right angles to the body and thrust perpendicularly into the host where it remains until all the eggs making the complement of a single egg mass are deposited. The ovipositor seems to move but slightly in the egg slit during the process, although a considerable movement of the abdomen is observable. In other cases the entire egg slit is made first and then the ovipositor is inserted perpendicularly and gradually moved backward during the process until it is almost parallel with the abdomen. In still other cases the insect makes the egg slit and inserts the egg at the same time. The ovipositor moves slowly through the bark, forcing the tissues apart and depositing the eggs in one movement. With a few species the ovipositor is withdrawn from the host after each egg has been deposited, and reinserted for the next egg. In one species which was carefully studied, the insect lays a number of eggs, then rests, then moves forward along the same slit and deposits more — generally a different number — then rests again, and so on until a complete row has been finished. The writer's observations have been that oviposition occurs most often when the sun is warmest and the temperature highest and usually on that side of the tree or plant which is exposed to the most direct rays of the sun when the process is in progress, but Wildermuth (1915) has reported a species which oviposited chiefly at night or early morning, so that apparently there is considerable variation in this matter.

The number of consecutive ovipositions made by one female varies with the species but has not been greater than five in any species noted. The average is not over three. In most cases the insect after depositing one egg mass moves along the twig for a short distance and repeats the process after a very short interval of rest. One female generally lays all her eggs on one twig or on twigs very close together, and it has never been observed that the insects move from one plant to another during the process. While ovipositing, the insect is entirely occupied with her work and does not respond to external influences. She refuses to be disturbed and may be touched or pushed without interrupting the process. The writer has often attempted to take a female from a branch while oviposition was in progress, and in doing so has broken off the ovipositor, which remained in the egg slit. The time required for a single oviposition varies from ten minutes to half an hour. Where several egg masses are deposited in succession, the resting period between each insertion increases; so that if fifteen minutes elapse between the first and second, a half hour may elapse between the second and third, and often several hours before a fourth if so many are made. The same female may, however, continue to lay eggs for several days until a large number have been deposited. Daily field records indicate that

four or five egg masses may be deposited by one female in a single day but after that she remains quiescent for at least twenty-four hours, and very probably for several days, before another egg-laying period begins. The number of eggs in one egg mass does not vary greatly for any one species and shows an average of four for all the species studied by the writer, with a minimum of one and a maximum of thirteen. The most usual method of placing the eggs seems to be in a palmate arrangement with the bases close together and the tips projecting outward, but in some species the eggs are laid singly, in others in straight rows, and in still others in irregular clusters.

The eggs are generally white or pearly, club-shaped or tooth-shaped, and about 1.5 millimeters long by 0.3 millimeters wide at the maximum diameter. The egg may be smooth or sculptured, the base usually being rounded and the tip pointed. In the eggs of most species a distinct neck is visible, often grooved. The chorion is usually vitreous. The micropyle in most cases is oval, opening tangential to the longitudinal axis. The cap is comparatively large, and before hatching becomes swollen and wrinkled. The lateral margins of the egg are curved, one side often being more convex than the other. Just before the eggs hatch they become slightly larger.

Observations in the field and breeding experiments in the laboratory indicate that the average duration of the egg stage for North American forms is approximately twenty days and for tropical species about twelve days. We have one record of an incubation which lasted only four days. However, ecological studies have shown that climatic conditions have a decided influence on the incubation of the egg and the development of the nymph so it is evident that there is much variation in the time required for the hatching of eggs. The hatching is retarded by dry weather and accelerated by abundance of moisture; likewise hatching is slower in cold weather than in warm weather. This may be due, however, to the condition of the vegetation during favorable and unfavorable growing seasons and it is possible that the ecological relationship between the insects and their hosts may have much to do with variations in life histories. However, even in the same egg mass the eggs do not all hatch at the same time, a difference of nearly a week between the first and the last having been observed in some instances.

The mechanics of the process of hatching is practically the same for all species studied. A few days before hatching, the egg appears somewhat swollen. This is followed by the cracking of the chorion about the neck and the upper end. Some days may elapse after the first splitting of the egg before the insect emerges. Finally the cap is forced upward and the head of the nymph appears. The head is quickly followed by the thorax and part of the abdomen. The nymph then appears to rest for a few minutes after which the legs are slowly withdrawn in order, beginning with the first pair. At the same time, the dorsal spines become protruded, while the insect is still held by the posterior end of the abdomen inside the shell. Finally this posterior end of the abdomen is pulled out, and the nymph creeps a very short distance away from the old shell and again rests. The entire time required for the emergence, from the time the head is first seen until the process is completed, is usually about half an hour.

All of the species of *Membracidæ* which the writer has studied show five nymphal instars. Each of these five instars is usually distinct enough to be recognized, and displays characters sufficient not only for the recognition of the species but also for the identification of the particular stage of development that it represents.

In the first instar the nymph is of course very small, not greatly exceeding in length the egg from which it hatched, very light-colored, and extremely soft-bodied. Most nymphs have characteristic dorsal spines on the thorax and abdomen. In the first stage these spines are much inclined to be complex and branched, and are numerous on the head and thorax with often one or more rows on

the abdomen. The head is very large, out of all proportion to the body, and the legs are feeble. The eyes are likely to be prominent, and the ocelli and antennæ absent or not distinguishable. If the species is a pubescent one, the hairs are usually not developed in this instar. No wing pads are visible and the abdomen is attenuated. The pronotum is not developed and the prothorax is about equal in size to the other thoracic segments.

In the second instar the size is usually doubled and the entire insect is much darker in appearance. The prothorax is inclined to be swollen dorsally but no distinguishing protuberance of the pronotum is apparent. No wing pads are visible. The head is more normal in comparative size and the eyes not so prominent. The ocelli may now be distinguished and likewise the antennæ. The spines are still very complex and branched but seldom appear on the head. The anal segment of the abdomen is prolonged and the entire body is stouter.

In the third instar the characteristic enlargement of the pronotum begins to appear and the wing pads are evident. The prothorax is much larger than the other two thoracic segments. The head is normal in size and the eyes are not over-prominent. The antennæ are plainly to be seen. The spines have lost much of their complexity and are much shorter and less branched. In this stage the spines of the head and thorax are often entirely wanting and the whole body develops pubescence. The anal segment of the abdomen is still much enlarged and the anal tube is prominent.

In the fourth instar the pronotal enlargement is pronounced, the posterior process usually covers the mesothorax and the structures begin to suggest those of the adult. The wing pads are large and well developed, usually extending posteriorly as far as the third abdominal segment. The head is reduced in comparative size, the ocelli are larger and the antennæ are normal. The spines are much reduced in complexity if not in size; often they appear as mere stubs or bristles, and they are seldom seen on any other part of the body than the abdomen. The insect has increased much in size and often shows colors characteristic of the imago.

The fifth and last instar is the longest in duration and in this instar the nymph attains a size comparable to that of the adult. The pronotal developments are very pronounced and the wing pads are fully formed, usually reaching the fourth abdominal segment. The spines are heavy but generally rather simple. The head is much deflexed, and the eyes, ocelli and antennæ are normal. The beak is fully developed, generally extending posteriorly as far as the hind coxæ. The legs are strong and stout and the abdomen is swollen. The anal tube is less prominent than in the preceding stages.

The foregoing descriptions of the nymphal stages apply in general to the family as a whole and of course there are many variations in different genera and species, but it is believed that these general characters are sufficient to enable one to distinguish the various instars in most species. We believe that the spines, which are very characteristic and constant, the development of the pronotum, the appearance of ocelli and antennæ, and the relative size of the wing pads, are good structural characters fo diagnosis.

The time required for each nymphal instar varies not only with the different species, but also for the nymphs of a single species, and even for the individuals in a single egg mass. Consequently only a very general statement can be made on this subject. Studies of North American forms indicate that, very roughly, the average for each of the first four instars is about five days, and for the fifth instar ten days, making a total of thirty days for the complete period of development from egg to adult, but we have no data on the tropical forms in this respect, so that the above figures may not at all represent the family as a whole.

There are various types of ecdysis, but seldom is there any variation in this respect within a genus. In most cases the nymph of the last instar fastens itself securely to the underside of a leaf just before

the final molt, and the old exuviæ may be found in this position several days after the process has been completed. In some cases only the first pair of legs are thus attached; in others all six legs. Some species do not attach themselves and the old skin falls to the ground as soon as ecdysis is complete; in other species the old nymphal skin hangs to the end of the abdomen of the adult and is carried about for some time after molting. Just before the last molt, the skin dries out and becomes more or less transparent and scaly. Under the microscope it is possible to distinguish regions in which the integument has pulled away from the new skin even before splitting begins. The splitting occurs down the dorsal line but does not always start in the same place. In most cases the splitting occurs first along the dorsal line of the head; in a considerable number it begins near the thorax, and in a few over the abdomen. The various segments gradually enlarge as they are freed, and become decidedly swollen within a few minutes following ecdysis. The exuviæ, if perfect, may be used for diagnosis and correctly represent the last nymphal stage.

The nymphs are active but they do not jump as do the adults. They are prone to hide themselves in crevices in the bark and in the axils of leaves, where their coloration renders them very inconspicuous. If disturbed they often creep around to the opposite side of the twig and are able to run fairly rapidly when in the later instars. They often have the habit of flattening themselves close to the twig if molested and remain without movement even when touched. During ecdysis they are of course comparatively helpless and may be studied with great ease.

The newly emerged adults are lighter in color than the normal hue of the species, and are very soft-bodied. The exoskeleton becomes hardened, however, within a couple of hours and the normal colors appear in twenty-four hours. In the insects are injured during this period the injury becomes permanent and the mutilation may appear as a grotesque twist or bend in the hardened pronotum. We suspect that such injured specimens have given rise to certain so-called new species and varieties, the descriptions of which have been based on single specimens with apparently new pronotal characters. After reaching the adult stage the insect often moves to a different host from that on which the eggs were laid. In fact such migration may take place during the last or the next to the last nymphal instar. In some cases a clear distinction can be made between the host used for oviposition and that used as a food plant; in other cases the insect spends its entire life on one plant which serves both as food and as an egg host. In the latter case both nymphs and adults may be taken together, and apparently they lead a more or less gregarious existence.

The foregoing life history notes apply in a general way to the family as a whole as the activities of the insects have been observed in many parts of the world. In the matters of numbers of broods and of methods of wintering over, however, no general statement can be made, since these aspects of the life histories of the insects show great variation according to the regions concerned. In the temperate zone and in all regions where the vegetation is retarded by winter conditions for a long or short period, the insects usually winter over in the egg stage with an occasional species surviving as adults hibernating in leaves and debris around the plants. In such regions the number of broods per year seems to vary with the length of the summer and ranges from one to five. In the tropics, however, membracids may be found as adults and in all the nymphal stages at practically all times of the year, and apparently mating, oviposition, development and maturation are continuous processes. In fact our collection of tropical membracids shows specimens collected in every month of the year and curiously enough no one month seems to be favored over the others so that we are forced to conclude that there is no break in the life histories unless it be due to purely local seasonal conditions.

HOSTS

The *Membracidæ* seem to be very excellent botanists and in most cases confine themselves to very definite host plants both for feeding and for oviposition. In many cases the association between the membracid and the host is so characteristic that a knowledge of one is sufficient for recognition of the other. In fact in some cases a species not only confines itself to a single host but is the only species ever found on that host. As a result, a considerable number of species have received such names as *querci*, *castaneæ*, *cratægi*, *ampelopsidis*, etc., to indicate such habitats.

The host plants of the *Membracidæ* in the United States are fairly well known since many writers have included such lists in their reports. Goding (1893a), Branch (1913) and Van Duzee (1908a) have published extended lists of host plants; economic papers by Hodgekiss (1910), Wildermuth (1915) and others, include detailed accounts of hosts; and life history studies by Matausch (1910-12) and Funkhouser (1915b, c and d) have discussed the hosts of particular species. The writer (1917) tabulated all the hosts known at that time for North American species. In North America the host plants may be divided into four rather well defined groups of plants. The most important of these groups is represented by the Amentiferæ, including such nut-bearing trees as oak, hickory, butternut, chestnut, beech and hazelnut; of hardly less importance are the legumes of which locust, sweet clover, alfalfa and red clover are favorite hosts for many species; the Rosaceæ in general, but particularly apple, pear, berries, and cultivated roses represent the third group; while the fourth includes a large number of succulent composites such as annual asters, sunflower, daisy, joe-pye weed and thistle. Practically every plant that has been recorded as a host for any species of *Membracidæ* in the United States may be included in one of these four groups.

The records of host plants of the tropical *Membracidæ*, on the other hand, are very meager, partly because the describers of new species neglected to note or mention the hosts, and partly because, as has been the experience of the writer in many regions (*e.g.* Sumatra), the local botanists and foresters were unable to identify the plants concerned. However, the more recent tropical collectors, among whom should be mentioned such excellent entomologists as H. S. Pruthi of India, H. M. Pendlebury of the Malay States, W. E. Hoffmann of China, M. A. Lieftinck of Java, G. van Son of South Africa, J. P. da Fonseca of Brazil and C. C. Plummer of Mexico, are now keeping careful field records and their contribution to the knowledge of this subject is rapidly increasing the data on the tropical and subtropical species. Even so, it is not yet possible to give any definite groupings for such host plants although certain particular hosts, such as species of Teak, Talauma, Cinnamon, Ficus, Magnolia, Butea, Gossampinus, Acacia, Dalbergia and Vitex have been reported from the East Indies, Teak, Sandal, Cedrus and Michelia from India, Acalipha, Blumea, Semecarpus, Mallolus, Hibiscus, Solanum, Eugenia, Phyllantus and Croton from the Philippines, and Boccharis, Cassia, Belaria, Wild Fig, Bucida, Vismia, Tachigalia, various legumes and cultivated tobacco in South America.

It is known that certain species having a wide geographical distribution shift from one host to another in different localities. Thus in the United States *Carynota mera*, common on pecan in the south is found on hickory in the north where the pecan does not grow. In other cases a species seems to deliberately change its host even though an apparently more constant host is abundant. Thus *Enchenopa binotata* which has a wide range over practically all of North America and is generally found on the hop tree (*Ptelea trifoliata* L.) is in some areas found only on the locust or on the butternut, even though there are plenty of hop trees in the immediate vicinity.

It is known, also, that certain species change their hosts during the life cycle, the nymphs migrating from the host on which the eggs were laid to feed on another host and returning to the first for oviposition. For example, *Stictocephala inermis* usually feeds on alfalfa but oviposits on pear and apple; *Ceresa bubalus* feeds on sweet clover but oviposits on elm; *Ceresa taurina* feeds on aster but oviposits on pear and apple.

As in the case of the life histories of the *Membracidæ*, much study needs to be made of the host plants, particularly of the tropical and Old World species, before sufficient data are available for a satisfactory knowledge of this subject.

ENEMIES

The *Membracidæ* seem to have but few natural enemies. Field notes covering a long period of years show surprisingly few cases of these insects actually having been observed captured or eaten by other animals.

Birds undoubtedly occasionally prey upon membracids, especially the soft bodied nymphs, but the insects form a relatively small part of their diet. The stomach analyses of insectivorous birds show only a meager percentage of *Membracidæ*. Wildermuth (1915) reports that of thirty-one birds, representing eight different species, ten had from one to four adults of *Stictocephala festina* in their crops; the writer (1917) published an unimpressive list of birds representing nine species feeding on eight species of *Membracidæ* and McAtee (1918) believes that birds capture more membracids than has generally been supposed. These records, however, do not indicate that membracids form an important proportion of the diet of any bird.

Toads have been known to capture membracids, particularly nymphs, and Asilids commonly carry off both nymphs and adults. Spiders often catch membracids both in their webs and on the twigs and the Mantis is not averse to an occasional specimen. On the whole, however, the damage done to the membracid population by these enemies is not great.

More important are the fatalities due to parasites which are found on both eggs and adults. The egg parasites in most cases are *Chalcididæ* but only a few have been determined, the only one ever reared by the writer being *Polynema striaticorne* Gir. Observations on egg parasitism would indicate that the parasite deposits its eggs in the newly laid eggs of the membracids and passes its larval and pupal stages within the egg. On maturing, the adult hymenopteron emerges by breaking off the cap of the egg-shell, which has meanwhile become discolored or blackened. Parasites on membracid eggs have been reported by Jack (1886), Ashmead (1888), Murtfeldt (1890), Hodgekiss (1910), and the writer (1915f, 1917) but only a few of these, including the one described by Ashmead *Trichogramma ceresarum*, have ever been positively determined.

Parasites in nymphs and adults are very common but have seldom been successfully reared. The writer has found larvæ, which were apparently hymenopterous, in the abdomens of many species of *Membracidæ*, but all attempts to bring the parasites to maturity have thus far failed. We believe that more than one season is probably required to complete the life history of the parasites and that our failures may have been due to the fact that sufficient time was not allowed for development. Matausch (1911) reported parasitism in *Membracidæ* which he believed was responsible for the destruction of sex organs but he was equally unsuccessful in rearing a single specimen of any of the parasites although he presents an excellent figure of the larvæ. Apparently there is some phase in the life

history of these parasites which does not lend itself readily to the usual methods of rearing. However, Kornhauser (1916, 1919) successfully reared parasites of *Thelia bimaculata*.

Wildermuth (1915) reports a small red mite (*Erythræus* sp.) feeding on membracid eggs and the writer has found similar mites, probably of the same genus, as external parasites on a number of species.

It is likely that the hard, sharp pronotum of the adult membracid, the protective coloration, and habits of the nymphs, and the protection given to both nymphs and adults by attendant ants, particularly the so-called « fire ants » of the tropics, which the writer can testify are among the worst of the enemies of the collector, are sufficient factors to discourage all but the most courageous of the usual insect enemies of insects and explain the comparative immunity of membracids to these foes.

MIGRATIONS

The migrations of the *Membracidæ* are apparently very slow both as regards change of locality and change of host plants. In any given region the same forms may be found in the same locality year after year, while a neighboring locality, offering the same natural conditions, remains unentered. The writer has often had the experience of collecting in a strange region, under the guidance of a local entomologist who had taken membracids in a certain particular place « several years ago »; almost without fail the insects were there as usual.

The same is true in regard to migrations from one plant to another. It often happens that one tree may be literally covered with individuals of a species, while another tree of exactly the same kind, in close proximity to the first, may be unmolested; and these conditions may be noted season after season.

The reasons for such reluctance in seeking new localities and new hosts are not evident. The insects fly well for short distances and should be able without difficulty to spread over a considerable area in a season provided the desired host is abundant throughout the area. This, however, appears not to be the case and is probably one of the reasons why the *Membracidæ* are not often noted as economic pests.

The migration of the nymph from the hosts on which the eggs are laid to the feeding plant, in cases in which such movement is part of the life history, is regular and definite, but the distance covered is never great.

The adults avoid flights of any distance, and if disturbed they generally leave the twig with a quick leap, fly rapidly in a narrow circle, and return to the plant from which they were driven. Even in a series of trees close together, all of the same kind and all inhabited by membracids of the same species, it is unusual to see the insect fly from one tree to another. The greatest movement noted in the field is found in areas covered by low grasses or other carpeting vegetation in which the insects fly erratically about when disturbed.

We believe that this disinclination for migration explains why the various species of *Membracidæ* seem to be so limited in distribution, why there are no cosmopolitan species, and why there are so many species. It is interesting to note that in regions broken by many barriers, such as the islands of the East Indies, each island has in general its own distinct species while the genera are common to the region. We believe that this indicates that the islands are the fragments of a large ancient land-mass which has been submerged long enough to prevent the isolated insects from interbreeding and to develop specific characters but not long enough to destroy the more general and fundamental generic

structures. We believe, also, that the general distribution of the *Membracidæ* over the surface of the earth may be explained largely on the basis of migrations regulated and governed by the size and positions of the land masses and land bridges of previous geological periods.

ECONOMIC IMPORTANCE

The Membracidæ, as a family, are of little economic importance. Since they are not flower-visiting insects they are of no value in the cross-pollination of plants, and they produce no materials valuable to man; on the other hand, they destroy no food products, the damage which they may cause to vegetation is so insignificant that except in the case of a very few species it is negligible, they do not feed on plant tissues, and so far as is known they are not carriers of disease.

The manner in which membracids may cause damage to plants is limited to two habits, feeding and oviposition. Of these the latter is the more harmful.

So far as feeding is concerned, there is little evidence that *Membracidæ* cause any injury to the host. The quantity of sap consumed by the insects is negligible, and the wounds made by the incisions of their beaks are neither large enough to destroy tissue nor extensive enough to offer opportunity for infection. In fact such incisions cannot usually be found even with a microscope a few hours after the process. Trees that are literally covered with *Membracidæ* seem in no way less healthy than those on which no insects are found. Careful examination of trees in the field shows absolutely no indication of injury from feeding habits.

The egg-laying process may be more destructive, but even this process in most species is of little concern. In most cases the slit made by the ovipositor is clean and sharp and very superficial, seldom extending to the cambium and usually healing at once leaving only a faint scar. The phloem tissue if injured is not so extensively damaged as to interfere with its function, and the injured part, in dicotyledons at least, would usually slough off naturally within the first or second season. The ovipositor in most of the species is neither long nor powerful, and in those forms in which the eggs are laid in the stems of trees — which include the larger number of species — the organ does not reach the xylem or, reaching it, is not able to penetrate the harder wood and slips to one side, leaving the egg between the wood and the bark. In the cases in which the eggs are laid in buds, the part of the bud usually chosen is the outer scales, which are not thereby prevented from performing their functions as protective structures and are of little importance in the later development of the plant.

There are, however, exceptions to the foregoing general statements. Certain species of the genus *Ceresa* in North America are known to cause rather serious damage to young stems and twigs because of the fact that the eggs are laid in curving, parallel rows and the bark is cut in such a fashion that it fails to heal and leaves a conspicuous line of scars. These scars persist for several years and are occasionally infected with fungi and offer an entrance for other insects. If such punctures are made in very young twigs or in the soft stems of annuals, especially if made close enough together to girdle the stems, the results may be serious. In a somewhat similar manner, damage may be done to buds by those species which lay their eggs in buds, particularly if the buds happen to be small ones in which the internal tissues may be reached. Species of *Stictocephala* and *Enchenopa* in the United States have been known to destroy small buds of fruit trees and of the butternut in this manner. In most cases, however, the buds chosen for oviposition are the large terminal buds and the eggs are so lightly inserted that they may be seen projecting on the outside of the bud. In these cases very little damage can result. In a few instances, on the other hand, the buds chosen have been so small and the eggs so

deeply inserted that the buds have been deformed. In the case of a fruit bud this would of course result in an economic loss, but the chances are so largely in favor of the choice of large buds, or of leaf buds which can be replaced without serious results, that the relative injury done is small.

The fact that *Membracidæ* are found in many parts of the world on host plants of great economic value, such as fruit trees in North America, teak in the Dutch Indies, sandal in India, and forage crops in various countries, and that so few reports on economic loss due to these insects have ever been made, would indicate that the membracids as a group should not be considered as pests.

Even if certain species should prove to be destructive, the problem of control should not be difficult. Very few if any of the Homoptera are so poorly adapted by habits and like factors to resist the ordinary control measures of the entomologist, as are the tree-inhabiting species of the *Membracidæ*, and it seems hardly likely that in orchards or forests in which the simplest kind of preventative work is done they will ever become serious pests. The nymphs of all species are very soft-bodied and habitually rest in the crotches of twigs and the axils of leaves, where they can easily be reached by contact sprays. Liquid sprays of the miscible oil or nicotine type will run down the twig and collect in such places, even if applied in a very careless and superficial manner to the tree. Egg masses are easily found, are usually on comparatively young stems, and can be removed by intelligent pruning. Clean cultivation and the removal of the weeds which furnish the food or of the secondary hosts on which the eggs are laid will control those forms which feed on one host and oviposit on another. On the whole the *Membracidæ* seem to be of little concern to the agriculturist or forester.

TERMINOLOGY

The peculiar pronotal structures of the *Membracidæ* have been largely responsible for the development of a terminology for this family which is in many cases quite different from that used for other insects. Certain descriptive terms have been proposed and adopted which are in some instances unique in entomology. Many of these names were first used by early writers but have found favor by later entomologists since they were well suited for descriptive purposes and they have now become well established.

Since these terms are used throughout the following descriptions of genera and in the taxonomic keys, a few of the most important should be mentioned.

Pronotum. Applies to any part of the notum of the prothorax whether visible or hidden. It is often greatly exaggerated in the *Membracidæ*.

Anterior process. Any projection arising from the front of the pronotum.

Dorsal crest. A protuberance or hump at or near the center of the pronotum.

Posterior process. Any extension of the pronotum behind the scutellum.

Scutellum. The posterior dorsal sclerite of the mesonotum.

Humeral angles. The lateral protuberances on either side of the front of the pronotum above the eyes.

Suprahumeral horns. Projections often cornute or auriculate on either side of the front of the pronotum above the humeral angles. Generally spoken of simply as « suprahumerals ».

Metopidium. The declivous part of the pronotum from the base of the head to the front of the dorsum.

Dorsum. Any part of the upper surface of the pronotum.

Median carina. An elevated ridge extending down the center of any part of the dorsum.

Lateral carinæ. Any ridges or rugæ on the side of the pronotum.

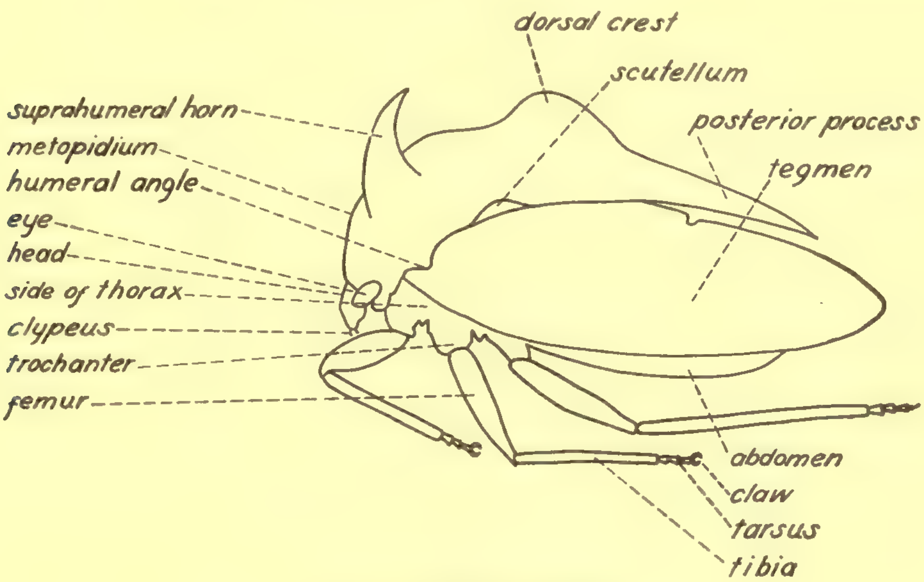


FIG. 7. — **General structures**

Base of head. That part of the head which adjoins the metopidium.

Eyes. The compound eyes on the side of the head.

Ocelli. The two simple eyes on the front of the head.

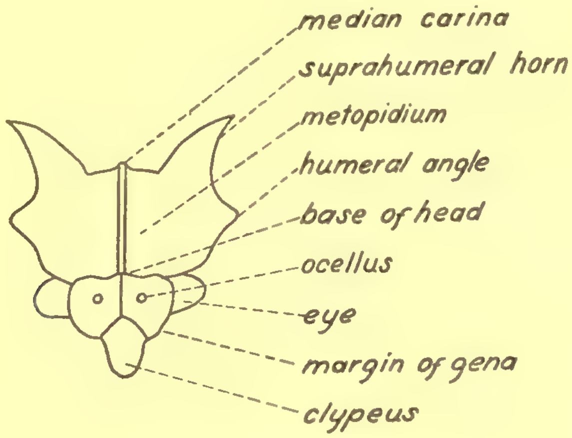


FIG. 8. — **Frontal structures**

Genæ. The side sclerites or « cheeks » extending from the eyes to the clypeus.

Clypeus. The terminal sclerite of the head above the beak.

Tegmina. In the Membracidæ always refer to the front wings or first pair of wings.

Wings. In the Membracidæ always mean the hind wings or second pair of wings.

Corium. The broader, anterior portion of the tegmen, farthest from the scutellum.

Clavus. The narrower anal portion of the tegmen, adjacent to the scutellum.

Claval suture. The dividing line, usually a distinct fold, separating the clavus from the corium.

Apical cells. Those cells of the tegmina or wings which border on the apical end.

Discoidal cell. Any completely enclosed cell in the center of the tegmen or wing.

Apical limbus. The outside membrane which forms the border of the tegmen or wing.

Armed trochanters. Hind trochanters which bear teeth on their inside margins.

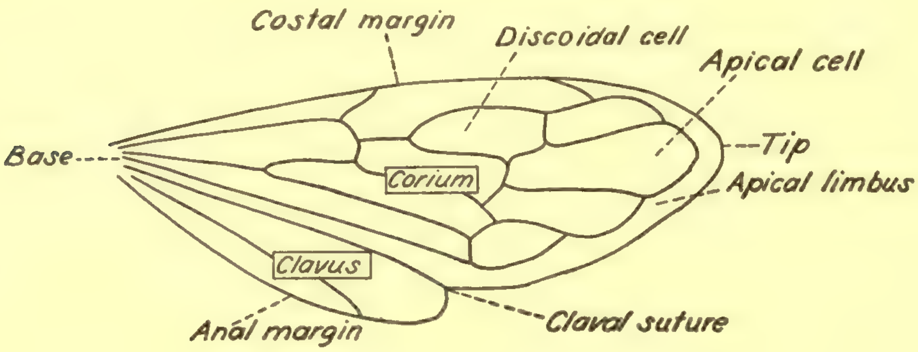


Fig. 9. — **Wing structures**

The above structures are diagrammatically represented in Text Figures 7, 8 and 9.

CLASSIFICATION

The classification of the *Membracidæ* here adopted recognizes six subfamilies, following the classical major divisions which were established by Fairmaire, Stal and Fowler. These subdivisions are based on sound structural characters and have proven entirely satisfactory for taxonomic work. Some authors (*e. g.* Goding 1926) have seen fit to include the genus *Æthalion* in the fam. *Membracidæ* as a subfamily but we do not see how such an assignment can be justified. The *Æthalionidæ* are quite distinct from the *Membracidæ* in such important characters as genitalia, wing venation, sensory apparatus, pronotal structures and in life histories, and we believe that these insects should be considered as a separate family. The six subfamilies here recognized show not only good structural characters by which they may be recognized, but there are few genera which show tendencies to overlap and indeed very few which may be considered transitional.

The subfamilies are divided into tribes, erected on more or less arbitrary characters. These tribes are in turn divided directly into the genera of which 290 are considered as valid in this study, and the genera are again divided directly into the species. No other subdivisions, such as sub-tribes or sub-genera, are here recognized or considered.

In the following systematic outlines, the characters are, for the most part, natural ones, and we believe entirely suited to dichotomous keys, and sufficient for the recognition of the divisions indicated. In such keys, however, the number of characters which can be mentioned in each synoptic pair is of course limited, and, in case of doubt, reference should always be made to the more complete generic descriptions.

TAXONOMIC CHARACTERS

It is of course impossible to state positively the characters which should be considered of generic value but after a careful study of those structures which in the *Membracidæ* seem to be most useful in separating the genera the author has chosen a list of certain easily recognizable features which we believe will serve this purpose. These have to do chiefly with the following :

1. The Head. Shape and position; structure of the base; form of the eyes; position of the ocelli; configuration of the inferior margins of the genæ; appearance of the clypeus.
2. The Prothorax. General shape and appearance of the pronotum; type of metopidium; appearance of humeral angles; structure of suprahumeral horns; shape and position of posterior process; type of scutellum.
3. The Tegmina and Hind Wings. Size and shape; free or covered; texture; condition of basal and costal margins; venation; number of apical and discoidal cells; shape of tip; apical limbus.
4. The Legs. Shapes and comparative lengths of femora and tibiæ; condition of trochanters; flattened or foliaceous parts; comparative length of hind tarsi.

In most cases it is of course not necessary to mention all of these characters, but in the instances of closely related genera where careful comparison is required to note differentiation, the entire category is often listed.

Coloration and sculpturing are in general ignored in these generic descriptions since such characters are usually specific rather than generic.

Neither have we used the genital characters or the abdominal structures, not because these are not valuable, for they probably are, but because they are so extremely difficult to distinguish in mounted specimens.

BIBLIOGRAPHICAL REFERENCES

For obvious reasons we have abbreviated the bibliographical references to the shortest possible form but we believe that no undue difficulties will be presented because of this fact since we are appending a complete bibliography to which reference may easily be made.

GEOGRAPHICAL DISTRIBUTION

It has been our practice for many years to keep a record of all localities represented by specimens sent us for determination as well as of those seen in collections throughout the world. We are thus able to add a great many distribution records to those given in previously published lists.

The problem has been how to limit the number of references in the cases of widely distributed species. In general, in such cases, we have endeavored to give for each species the general region in which it is to be found, with enough scattered localities to indicate the extent of distribution.

FAM. MEMBRACIDÆ GERMAR

SUBFAMILIES OF THE FAM. MEMBRACIDÆ

I. *Scutellum absent or rudimentary and entirely concealed by the pronotum.*

  A. *Anterior tibiæ foliaceous.* . . . . MEMBRACINÆ Stal.

  B. *Anterior tibiæ simple*

    1. *Posterior tarsi very short, much shorter than front or middle tarsi* . . PLATYCOTINÆ Subfam. nov.

    2. *Posterior tarsi as long or longer than front or middle tarsi*

      a. *Third apical cell of corium truncate, never petiolate* . . . . . DARNINÆ Stal.

      aa. *Third apical cell of corium petiolate*

        b. *Tegmina coriaceous and opaque; apical limbus very broad* . . . TRAGOPINÆ Stal.

        bb. *Tegmina entirely or almost entirely membranous; apical limbus narrow.* . . . . SMILIINÆ Stal.

II. *Scutellum present; usually exposed* . . . . CENTROTINÆ Spinola.

SUBF. MEMBRACINÆ STAL

TRIBES OF SUBF. MEMBRACINÆ

I. *Pronotum foliaceous, elevated, and more or less bilaterally flattened* . . . . MEMBRACINI Goding.

II. *Pronotum not foliaceous*

  A. *Pronotum with one or more anterior horns or protuberances* . . . . . NOTOCERINI Tribus nov.

  B. *Pronotum without frontal horns* . . . . BOLBONOTINI Goding.

GENERA OF THE TRIBE MEMBRACINI GODING

I. *Pronotum highly elevated, arcuate, rounded, compressed and leaf-like; no pronotal processes* . . . . MEMBRACIS Fabricius.

II. *Pronotum little elevated, moderately compressed and having an anterior horn or frontal angle*

  A. *Frontal horn long, usually porrect; head subquadrate*

    1. *Lateral carinæ not extended behind humeral angles.* . . . . ENCHOPHYLLUM A. & S.

    2. *Lateral carinæ extended behind humeral angles, usually reaching lateral margins of pronotum*

      a. *Lateral carinæ of pronotal horn equidistant from superior and inferior margins; both margins foliaceous* . . . . ENCHENOPA A. & S.

      aa. *Lateral carinæ of pronotal horn close to upper margin; inferior margin not foliaceous* . . . . CAMPYLENCHIA Stal.

  B. *Frontal horn short, erect; head triangular* . . . . TRITROPIDIA Stal.

1. Genus MEMBRACIS Fabricius

Membracis Fabricius, Syst. Ent. 675. (1775).
Phyllotropis Stal, Hem. Fabr. II : 41. (1869).

Characters : The type genus of the family and of the subfamily. Distinguished by the very foliaceous pronotum, leaf-like, highly elevated, and much flattened laterally. There are no pronotal processes of any kind and the entire body is generally an arcuate plate. The tibiæ, particularly the front pair, are broadly compressed and foliaceous. The insects of this genus are mostly of large size, among the largest in the entire family, and are often very brilliantly colored. They are among the most conspicuous of all membracids.

Type *foliata* Linnæus.

Geographical distribution : The genus is limited to South and Central America and the species are distributed as follows :

1. *albolimbata* Fowler, B. C. A. 5. 2. Pl. 1 : figs. 1, 1a (1894).	Honduras.
2. *alticollum* Stoll, Cigal. Pl. 28 : fig. 165 (1780).	Surinam.
3. *arcuata* De Geer, Ins. III : 206. 9 (1773). *periphæria* Fairmaire, Rev. Memb. 245. 7 (1846). *subtecta* Buckton, Mon. Memb. 42 (1903).	Brazil, Guiana.
4. *atrata* Fabricius, Syst. Rhyng. 8. 10 (1803).	South America.
5. *bipars* Schmidt, Ent. Mitt. XIII : 290 (1924).	Ecuador.
6. *bucktoni* Funkhouser (nom. nov.), Ent. News XXXII : 151 (1921). *militaris* (preoccupied) Buckton, Mon. Memb. 43 (1903).	Brazil.
7 *carinata* Fabricius, Syst. Rhyng. 8.8 (1803).	Brazil, Guiana.
8. *caruata* Fabricius, Syst. Rhyng. 13 (1803).	Brazil.
9. *confusa* Fairmaire, Rev. Memb. 247. 14 (1846). *interrupta* Fairmaire, Rev. Memb. 247. 16 (1846). *malleonata* Fairmaire, Rev. Memb. 247. 14 (1846). *juncta* Walker, Ins. Saund. 59 (1858). *trifasciata* Stal, Bid. Memb. Kan. 269. 1 (1869). *trisignata* Stal, Bid. Memb. Kan. 269. 2 (1869). *exigua* Buckton, Mon. Memb. 42 (1903).	Brazil, Colombia.
10. *divergens* Schmidt, Ent. Mitt. XIII : 291 (1924).	Ecuador.
11. *dorsata* Fabricius, Syst. Rhyng. 11. 26 (1803). *curvilinia* Walker, Ins. Saund. 58 (1858). *ephippiata* Stal, Hem. Fab. II : 41. 7 (1869). *vergens* Buckton, Trans. Linn. Soc. Zool. IX : 330 (1905).	Brazil.
12. *fasciata* Fabricius, Syst. Nat. II : 2092. 54 (1767). *cingulata* Germar, Rev. Silb. III : 307 (1835). *rosea* Fairmaire, Rev. Memb. 246. 9 (1846). *cucullata* Dohrn, Cat. Hem. 76 (1859). *fasciatum* Stal, Hem. Fab. II : 41. 1 (1869). *sanguinoplaga* Schmidt, Stet. Ent. Zeit. LXVII : 361 (1906). *completa* Schmidt, Stet. Ent. Zeit. LXVII : 361 (1906).	Brazil, Guiana.
13. *foliata* Linnæus, Syst. Nat. II : 705. 2 (1767). — **Pl. 1, fig. 1.** *maculifolia* Stoll, Cigal. 17. Pl. 1. fig. 2 (1780). *flaveola* Fabricius, Mant. Ins. II : 262. 4 (1787). *c-album* Fairmaire, Rev. Memb. 244. 4 (1846). *celsa* Walker, List Hom. B. M. 475. 9 (1851). *expansa* Walker, List Hom. B. M. 475. 8 (1851).	Brazil, Guiana, Colombia, Venezuela, Mexico, Guatemala, Ecuador.

flexa Walker, Ins. Saund. 58 (1858).
surgens Dohrn, Cat. Hem. 76 (1859).
jessica Goding, Memb. Ecuad. 34 (1920).

14. *fusca* De Geer, Ins. III : 208. 10 (1773). — Peru, Brazil [Guiana.

15. *humilis* Fowler, B. C. A. 6. 6. Tab. I, fig. 6, 6a (1894). — Mexico, Peru, Ecuador,

16. *lefebvrei* Fairmaire, Rev. Memb. 246. 10 (1846). — Brazil, Guiana, Mexico.
divisa Walker, List Hom. B. M. Suppl. 123 (1858).
confinis Buckton, Mon. Memb. 41 (1903).

17. *lunata* Fabricius, Mant. Ins. II : 262. 6 (1787). — Brazil, Surinam.
nigro-albomaculata (nom. nud.) Stoll, Cigal. 33. (1780).
mimica Walker, List Hom. B. M. Suppl. 123 (1858).

18. *mexicana* Guerin, Icon. Reg. Anim. 364 (1838). — Mexico, Honduras, Guatemala, Nicaragua, Costa Rica, Panama, Colombia.
stolida Fairmaire, Rev. Memb. 248. 20 (1846).
sex-maculata Walker, Ins. Saund. 59 (1858).
suffusa Buckton, Mon. Memb. 38 (1903).

19. *micans* Buckton, Trans. Linn. Soc. Zool. IX : 330 (1905). — Unknown.

20. *nigrifolia* Stoll, Cigal. 68 (1780). — Brazil, Surinam.
nigra Olivier, Enc. Meth. VII : 668. 4 (1792).
compressa Fabricius, Syst. Rhyng. 9. 14 (1803).

21. *peruana* Schmidt, Ent. Mitt. XIII : 291 (1924). — **Pl. I, fig. 2.** — Peru.

22. *peruviana* Fairmaire, Rev. Memb. 249. 21 (1846). — Peru, Chile, Brazil.
intermedia Fairmaire, Rev. Memb. 249. 22 (1846).
ambigua Fairmaire, Rev. Memb. 249. 24 (1846).

23. *proboscidea* Burmeister, Zool. Handb. Atlas. Pl. 29, fig. 26 (1860). — Mexico.

24. *schmidti* (nom. nov.) Funkhouser, Cat. Memb. 53 (1927). — Colombia.
trimaculata (preoccupied) Schmidt, Ent. Mitt. XIII : 294 (1924).

25. *tectigera* Stoll, Cigal. 58. Pl. 14, fig. 71 (1780). — Brazil, Surinam, Guiana, Colombia, Venezuela, Mexico, Ecuador.
fasciata Coquebert, Ill. Icon. Tab. 18, fig. 1 (1799).
elevata Fabricius, Syst. Rhyng. 8. 9 (1803).
alta Walker, List Hom. B. M. 476. 11 (1851).
fuscata Atkinson, J. A. S. B. 54. 79 (1884).
provittata Buckton, Mon. Memb. 42 (1903)

26. *tricolor* Fairmaire, Rev. Memb. 249. 23 (1846). — Colombia.

27. *trimaculata* Fairmaire, Rev. Memb. 245. 6 (1846). — Costa Rica.
nebulosa Fowler, B. C. A. 318. 1 (1909).

28. *zonata* Fairmaire, Rev. Memb. 248. 17 (1846). — Brazil.
fusifera Walker, Ins. Saund. 58 (1858).

2. Genus ENCHOPHYLLUM Amyot and Serville

Enchophyllum Amyot and Serville, Hémip. 534. (1843).
Tropidocera Stal, Hem. Fabr. II : 38. (1869).

Characters : Insects of medium size with the pronotum but slightly elevated and only moderately compressed and with a long anterior pronotal process which usually projects forward over the head. The head is subquadrate and the genæ as well as the front tibiæ are foliaceous. The tegmina are narrow, lanceolate and usually more or less opaque. The frontal horn bears lateral carinæ but these ridges do not extend farther backward than the humeral angles. This genus is distinctly transitional between *Membracis* and *Enchenopa*.

Type *cruentatum* Germar.

Geographical distribution :

1. *albidum* Fowler, B. C. A. 7. 2 (1894).	Guatemala.
2. *cassis* Stoll, Cigal. 48. Pl. 11, fig. 52 (1780).	Surinam.
3. *cruentatum* Germar, Rev. Silb. III : 266. 11 (1835).	Brazil.
4. *decoratum* Erichson, Schomb. Reis. 615 (1848). *tripustulatum* Stal, Bid. Mem. Kan. 270 (1869).	Guiana.
5. *dubium* Fowler, B. C. A. 38. 3 (1894).	Guatemala, Mexico, Panama.
6. *ensatum* Fabricius, Syst. Rhyng. 12. 28 (1803). *scenica* Dohrn, Cat. Hem. 76 (1859).	Brazil, Colombia.
7. *fulicum* Germar, Rev. Silb. III. 225. 9 (1835). *nigrocuprea* Walker, Ins. Saund. 60 (1858).	Brazil.
8. *malaleucum* Walker, Ins. Saund. 59 (1858).	Brazil, Mexico, Guatemala.
9. *imbelle* Stal, Bid. Memb. Kan. 271. 7 (1869).	Brazil, Argentina.
10. *nigroluteum* Funkhouser, Journ. N.Y. Ent. Soc. XXV : 2. 159 (1927).	Brazil.
11. *quinquemaculatum* Fairmaire, Rev. Memb. 250. 27 (1846). *auropicta* Buckton, Mon. Memb. 50 (1903). *maculatum* Buckton, Mon. Memb. 45 (1903).	Brazil.
12. *rileyi* Goding, Can. Ent. XXV : 56. 7 (1893).	St. Vincent's Island.
13. *simulans* Stal, Rio Jan. Hem. II : 23. 8 (1858).	Brazil.
14. *squamigerum* Linnæus, Syst. Nat. XII : 1. 12 (1767).	Brazil.
15. *trimaculatum* Stal, Hem. Mex. 68. 407 (1864).	Mexico.

3. Genus ENCHENOPA Amyot and Serville

Enchenopa Amyot and Serville, Hémip. 535 (1843).

Characters : This genus was erected by the authors to include those forms of their « Cornidorsi » which differed from their preceding genus *Enchophyllum* in having the pronotum not foliaceous although possessing an anterior horn. Later, however, Stal split off his genus *Campylenchia* on the characters of the pronotal process, so that now the genus *Enchenopa* is limited to those species having the pronotum very little elevated, only slightly compressed, the only foliaceous portion being the more or less porrect pronotal horn in which a single midrib-like ridge extends down the center, leaving both margins flattened and about equal in width. The sides of the pronotum are multicarinate and the ridges extend posteriorly farther than the humeral angles and generally reach the lateral margins.

Type *monoceros* Germar.

Geographical distribution :

1. *albidorsa* Fairmaire, Rev. Memb. 251. 30 (1846). *ephippiata* (sic) Goding, Journ. N.Y. Ent. Soc. XXXVI : 210 (1928).	Brazil, Colombia, Guiana.
2. *altissima* Fairmaire, Rev. Memb. 252 (1846).	Colombia.
3. *andina* Schmidt, Ent. Mitt. XIII : 293 (1924).	Costa Rica.
4. *apicalis* Stal, Hem. Mex. 68. 408 (1864).	Mexico.
5. *arcuata* Walker, List Hom. B. M. Suppl. 125 (1858).	Brazil.
6. *bicolor* Walker, List Hom B. M. 38 (1851).	Brazil.

7. *bicuspis* Walker, List. Hom. B. M. 487. 31 (1851). — Unknown.

8. *bifusifera* Walker, List Hom. B. M. Suppl. 125 (1858). — Mexico.

9. *binotata* Say, Narr. Long's Exp. App. 301 (1824). — Canada, United States.
brevis Walker, List. Hom. B. M. 492 (1851).

10. *concolor* Fairmaire, Rev. Memb. 253. 37 (1846). — Brazil.
nigro-apicata Stal, Rio Jan. Hem. II : 23 (1858).

11. *costaricensis* Schmidt, Ent. Mitt. XIII : 293 (1924). — Costa Rica.

12. *ferruginea* Walker, List Hom. B. M. 489. 34 (1851). — Colombia.
varians Walker, Ins. Saund. 62 (1858).

13. *gladius* Fabricius, Syst. Rhyng. 13. 30 (1803). — Panama, Brazil.

14. *gracilis* Germar, Mag. Ent. IV : 29. 31 (1818). — Brazil.

15. *ignidorsum* Walker, List Hom. B. M. Suppl. 124 (1858). — Mexico, Panama, Ecuador, Surinam.

16. *lanceolata* Stoll, Cic. Tabl. 27, fig. 166 (1780). — Brazil, Colombia, Nicaragua, Guiana.
longicollum Olivier, Enc. Meth. VII : 667. 1 (1792).

17. *monoceros* Germar, Mag. Ent. IV : 28. 29 (1818). — **Pl. 1, fig. 3.** — Brazil, Argentina, Guiana.

18. *multicarinata* Fowler, B. C. A. 11. 7 (1894). — Mexico.

19. *nigrocuprea* Walker, Ins. Saund. 60 (1858). — Brazil.

20. *permutata* Van Duzee, Stud. N. A. Memb. 112 (1908). — United States.
utahensis Goding, Journ. N.Y. Ent. Soc. XXXVII : 2. 167 (1929).

21. *quadricolor* Walker, Ins. Saund. 60 (1858). — Guatemala, Mexico, Brazil, Venezuela.
subangulata Walker, Ins. Saund. 61 (1858).
excelsior Walker, Ins. Saund. 61 (1858).
humilior Walker, Ins. Saund. 62 (1858).
curvicornis Walker, Ins. Saund 62 (1858).

22. *quadrimaculata* Walker, List Hom. B. M. Suppl. 124 (1858). — Brazil.

23. *sericea* Walker, List Hom. B. M. 493. 41 (151). — Venezuela, Mexico, Panama.

24. *tesselata* Buckton, Mon. Memb. 48 (1903). — Brazil, Mexico.

4. Genus CAMPYLENCHIA Stal

Campylenchia Stal, Hem. Fabr. II : 39. 43 (1869).

Characters : *Campylenchia* was denominated a subgenus by Stal to accommodate those insects in which the inferior margin of the pronotal horn was not foliaceous and the carina of this process was close to the superior margin. The group was raised to generic rank by Goding (1892) on the basis of these characters and has since been so recognized, but the distinction is not clear-cut and there are many species which are more or less transitional. The other characters are the same as those for the genus *Enchenopa*. On the whole, the range of *Campylenchia*, at least as to numbers of individuals, seems to be farther north than *Enchenopa*.

Type *curvata* Fabricius.

Geographical distribution :

1. *curvata* Fabricius, Syst. Rhyng. 13. 34 (1803). — **Pl. 1, fig. 4.** — Colombia, Mexico, United States.
densa Walker, List Hom. B. M. 490. 35 (1851).

2. ***hastata*** Fabricius, Mant. Ins. II : 263. 9 (1787). — Peru, Brazil, Panama, Mexico, Guiana.
   nutans Germar, Mag. Ent. IV : 28. 30 (1818).
   nigrovittata Walker, List Hom. B. M. 539. 14 (1851).

3. *latipes* Say, Narr. Long's Exp. App. 302 (1824). — Canada, United States.
   antonina Walker, List Hom. B. M. 488 (1851).
   venosa Walker, List Hom. B. M. 488 (1851).
   frigida Walker, List Hom. B. M. Suppl. 126 (1858).
   antonæ (sic) Dohrn, Cat. Hem. 76 (1859).
   bimacula Dohrn, Cat. Hem. 76 (1859).
   rectidorsum Buckton, Mon. Memb. 49 (1903).

4. *minans* Fairmaire, Rev. Memb. 252. 35 (1846). — Mexico, Espiritu Santo Isl.
   micans (sic) Stal, Hem. Mex. 57. 405 (1864).

5. *rugosa* Fowler, B. C. A. 10. 6 (1894). — Mexico.

5. Genus TRITROPIDIA Stal

Tritropidia Stal, Hem. Fabr. II : 44 (1869).

Characters : Distinguished from the other genera of the *Membracini* by the triangular head and the short, erect frontal horn. The pronotum is moderately elevated, rather distinctly compressed and the lateral carinae are usually very faint or obsolete. The species are all small in size and are mostly bright in color.

Type *galeata* Olivier.

Geographical distribution :

1. *bifenestrata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1 (1922). — Brazil, Guiana.

2. *galeata* Olivier, Enc. Meth. VII : 668. 6 (1792). — **Pl. I, fig. 5.** — Surinam, Peru, Guiana.
   militaris Fabricius, Syst. Rhyng. 15. 39 (1803).
   pulchella Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1 (1922).

3. *nimbata* Fabricius, Syst. Rhyng. 15. 40 (1803). — Surinam, Brazil.
   alticervex (nom. nud.) Stoll, Cigal. 113 (1780).

4. *rubrocassis* Stoll, Cigal. 67. Pl. 17, fig. 90 (1780). — Surinam, Ecuador.

GENERA OF TRIBE NOTOCERINI TRIBUS NOV

I. *Head distinctly trilobed* . . . . SPONGOPHORUS Fairmaire.

II. *Head not trilobed*

  A. *Venation normal*

    1. *Anterior pronotum produced in a single porrect process or tubercle*

      a. *Surface of pronotum smooth* . . . . GUAYAQUILA Goding.

      aa. *Pronotum bearing ridges, spines or nodules*

        b. *Dorsal margin smooth* . . . . PHILYA Walker.

        bb. *Dorsal margin spinose* . . . . HYPSOPRORA Stal.

    2. *Anterior pronotum with two suprahumerals* . . . . . . NOTOCERA A. & S.

  B. *Venation irregular; many small cellules*

    1. *Single porrect pronotal process* . . . . SCALMORPHUS Fowler.

    2. *Two suprahumeral horns or entirely without processes* . . . . MULTAREIS Goding.

6. GENUS SPONGOPHORUS FAIRMAIRE

Spongophorus Fairmaire, Rev. Memb. 261 (1846).
Cladonata Stal, Bid. Memb. Kan. 273 (1869).

Characters : This is one of the most remarkable of all of the genera of the Membracidæ in showing grotesque and bizarre pronotal developments which appear generally in the form of greatly exaggerated dorsal processes. These most unusual and almost unbelievable structures have doubtless suggested many of the specific names in the genus such as « inelegans », « ludicrus », « mirabilis », « paradoxus » and « ridiculus ». Fairmaire speaks of the prothorax as « sometimes a bow, sometimes presenting elongated or fungiform swellings, sometimes extending beyond the extremity of the elytra » but chooses as his definitive character the peculiar trilobed head, which is, indeed, a character sufficient to distinguish it from all other genera of the tribe *Notocerini*. Fairmaire notes, in addition, the fact that the ocelli are on a line with the middle of the eyes and that the elongate tegmina are usually free.

Type *ballista* Germar.

Geographical distribution :

1. *affinis* Fowler, B. C. A., 29. 3 (1894).	Guatemala.
2. *albofasciatus* Goding, Can. Ent. XXV : 54. 5. (1893).	West Indies.
3. *atratus* da Fonseca, Arquiv. Instit. Biol. VII : 12. 162 (1936).	Brazil.
4. *ballista* Germar, Rev. Silb. III : 231. 1 (1835). — **Pl. I, fig. 6.** *claviger* Stal, Hem. Mex. 68 (1864). *apicalis* Stal, Bid. Memb. Kan. 273. 1 (1869). *brunneus* Fallou, Rev. Ent. IX : 254 (1891).	Mexico, Guatemala, Panama, Colombia.
5. *bennetti* Kirby, Mag. Nat. Hist. 20 (1869).	Colombia.
6. *biclavus* Westwood. Int. Class Ins. II : 432 (1840). *parvulus* Buckton, Mon. Memb. 80 (1903).	Brazil, Panama, Mexico.
7. *bivexillifer* Costa, Mus. Nap. II : 150 (1862).	South America.
8. *championi* Fowler, B. C. A. 28, 2 (1894).	Guatemala.
9. *cinereus* da Fonseca, Rev. Ent. III : 4. 445 (1933).	Brazil.
10. *clavaria* Fairmaire, Rev. Memb. 261. 4 (1846).	Brazil.
11. *costata* Buckton, Mon. Memb. 61 (1903).	St. Vincent's.
12. *facetus* Walker, Ins. Saund. 64 (1858). *acetus* (sic) Buckton, Mon. Memb. 82 (1903).	South America.
13. *falleni* Stal, Rio Jan. Hem. II : 24. 1. (1862).	Brazil.
14. *foliatus* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 8. (1922).	Brazil.
15. *guerini* Fairmaire, Rev. Memb. 262. 6. (1846). *spatulatus* Fairmaire, Rev. Memb. 262. 7 (1846). *dorsalis* Buckton, Mon. Memb. 80 (1903). *querini* (sic) Comstock, Int. Ent. 404 (1924).	Brazil, Bolivia, Guiana, Panama.
16. *inelegans* Buckton, Mon. Memb. 82 (1903).	Mexico.
17. *inflatus* Fowler, B. C. A. 30. 5 (1924).	Guatemala.
18. *latifrons* Stal, Bid. Memb. Kan. 272. 4 (1869).	Mexico.
19. *lividus* Buckton, Mon. Memb. 81(1903).	Brazil.
20. *lobulatus* Stal, Bid. Memb. Kan. 276. 6 (1869).	Bogota.
21. *locomotiva* Breddin, Soc. Ent. 60 (1901).	Ecuador.

22. *ludicrus* Walker, Ins. Saund. 63 (1858).	Brazil.
23. *machinula* Breddin, Soc. Ent. 60 (1901).	Ecuador.
24. *mirabilis* Fairmaire, Rev. Memb. 261. 2 (1846).	Brazil.
25. *nodosis* Buckton, Mon. Memb. 79 (1903).	Brazil.
26. *paradoxus* Germar, Mag. Ent. IV : 26, 27. (1818).	Brazil.
27. *ridiculus* Walker, Ins. Saund. 64 (1858).	Brazil.
28. *rigidus* Stal, Bid. Memb. Kan. 275. 5 (1869).	Colombia.
29. *robustulus* Fowler, B C. A 29. 4 (1894).	Guatemala.
30. *rufescens* da Fonseca, Rev. Ent. III : 4. 444. (1933).	Brazil.
31. *undulatus* Walker, List Hom. B. M. 498. 9 (1851).	Brazil.
32. *vexilliferus* Goding, Can. Ent. XXV : 53. 4 (1893).	West Indies.

7. Genus GUAYAQUILA Goding

Guayaquila Goding, Memb. Ecuad. 21 (1920).

Characters : We have never seen an example of this genus, and, in fact, the genus has never been recognized by any author other than Goding himself. We can therefore only quote his generic description as follows :

> « Pronotum armed with a compressed horn in front, destitute of lateral carinæ but with a percurrent median carina; dorsum flat, broad at humeral angles, gradually attenuated to an obtuse apex which reaches tip of abdomen, but shorter than apices of tegmina. Generally golden silky pubescent. Tegmina similar in shape and venation to those seen in the genus *Membracis*. Wings with four apical cells, second broad and quadrangular, fourth minute. Front and middle tibiæ broadly dilated, short; posterior legs three times the length of front legs, hind tibiæ with strong sharp spines. Facies of *Aconophora*. »

From the above description it would appear that the only diagnostic characters which would separate this genus from other closely related genera would be the absence of lateral carinæ and the long hind legs, which would seem to be very slight differences on which to erect a new genus. The figure published in the « Boletin de Medicina y Cirurgia » is entirely unsatisfactory.

Type *roreriana* Goding.

Geographical distribution :

1. *aperta* Walker, List Hom. B. M. Suppl. 337 (1858).	Brazil, Ecuador.
2. *maxima* Goding. Journ. N. Y. Ent. Soc. XXXVI : 43 (1928).	Ecuador.
3. *mirucornua* Goding, Amer. Mus. Novit. 7 (1930)	Honduras.
4. *olseni* Goding, Journ. N Y. Ent. Soc. XXXVI : 224 (1928).	Honduras.
5. *roreriana* Goding, Memb. Ecuad. 34, 37 (1920).	Ecuador.
6. *sulfurus* Goding, Journ. N. Y. Ent. Soc. XXXVI : 44 (1928).	Ecuador.
7. *vexator* Goding, Journ. N. Y. Ent. Soc. XXXVI ; 43 (1928).	Ecuador.

8. Genus PHILYA Walker

Philya Walker, List Hom. B. M. Suppl. 126 (1858).
Azinia Walker, Ins. Saund. 63 (1858).
Æchmorpha Stal, Hem. Fabr. II : 39 (1869).

Characters : A group of small, slender-bodied insects at once distinguished by the single long, porrect anterior process which is usually slightly swollen and often somewhat bidentate at the tip. The

head is subquadrate, all of the tibiæ very foliaceous, the sides of the pronotum rugose or roughly sculptured and the dorsum smooth. The tegmina are long and narrow and the cells of the apical area much given to irregularity and a multicellular condition. The insects are inconspicuous and of somber colors.

Type *bicolor* Walker.

Geographical distribution :

1. *ascendens* Walker, List Hom. B. M. 493. 40 (1851).	Colombia, Ecuador.
2. *bicolor* Walker, List Hom. B. M. Suppl. 126 (1858). *curvicornis* Stal, Bid. Memb. Kan. 279. 228 (1869).	Brazil, Colombia.
3. *californensis* Goding, Cat. N. A. Memb. 466. 228 (1894). — **Pl. I, fig. 7.**	United States.
4. *dubia* Fowler, B. C. A. 22. 4 (1894).	Mexico.
5. *elephas* Stal, Rio Jan. Hem. II : 23. 11 (1858).	Brazil.
6. *ferruginosa* Goding, Cat. N. A. Memb. 466. 227 (1894).	United States.
7. *lituus* Fowler, B. C. A. 21. 1 (1894).	Mexico.
8. *lowryi* Plummer, Ann. Ent. Soc. Amer. XXIX : 4. 682 (1936).	Mexico.
9. *minor* Fowler, B. C. A. 22. 3 (1894).	Guatemala.
10. *pallidipennis* Walker, Ins. Saund. 63 (1858).	Chile, Colombia.
11. *strigulata* Buckton, Mon. Memb. 57 (1903).	Brazil.
12. *vitreipennis* Fowler, B. C. A. 21. 2 (1894).	Mexico

9. GENUS HYPSOPRORA STAL

Hypsoprora Stal, Bid. Memb. Kan. 277 (1869).

Characters : Closely related to *Philya* but differing in having the dorsum decorated with spines and often bearing an erect median dorsal process. The anterior horn is strong and is produced upward or forward. All three pairs of tibiæ are strongly foliaceous. The tegmina are lanceolate and are generally opaque with the venation indistinct. All of the insects of this genus are of small size and of inconspicuous colors.

Type *pileata* Fairmaire.

Geographical distribution :

1. *albopicta* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 17 (1922).	Brazil, Peru.
2. *anatina* Fowler, B. C. A. 26. 3 (1894).	Panama.
3. *aspera* Haviland, Zoologica VI : 3. 242 (1925).	Guiana.
4. *coronata* Fabricius, Syst. Rhyng. 14. 38 (1803). — **Pl. I, fig. 8.** *varia* Walker, List Hom. B. M. 502. 17 (1851).	Guatemala, Brazil, Mexico, Panama.
5. *erecta* da Fonseca, Rev. Ent. III : 4. 441 (1933).	Brazil.
6. *nigerrima* Fowler, B. C. A. 25. 2 (1894).	Mexico, Guatemala.
7. *nogolata* Ball, Proc. Biol. Soc. Wash. XLVI : 29 (1933).	United States.
8. *pileata* Fairmaire, Rev. Memb. 266. 12 (1846).	Colombia.
9. *simplex* Van Duzee, Calif. Acad. Sci. XII : 11. 169 (1923).	Lower Calif.
10. *teter* Buckton, Mon. Memb. 66 (1903).	Brazil.

11. *trituberculata* Stal, Bid. Memb. Kan. 278. 5 (1869).	Mexico, Panama.
12. *tuberosa* Stal, Bid. Memb. Kan. 277. 3 (1869).	Colombia.

10. Genus NOTOCERA Amyot and Serville

Notocera Amyot and Serville, Hémip. 536 (1843).
Pterygia (preoccupied) Laporte, Ann. Soc. Ent. France I : 266 (1832).
Kallipterygia Kirkaldy, Ent. XXXIV : 6 (1901).

Characters : The genus may be recognized at once by the two ampliate suprahumeral horns and by the remarkably spinose and nodulate character of the dorsum which gives the insect a most unprepossessing and diabolical appearance as such specific names as « dæmonica » and « satanas » would indicate. The head is subquadrate, longer than wide, and leaf-like. All three pairs of tibiæ are broadly flattened. The tegmina are usually semiopaque but the venation is normal. All of the insects of this genus are small in size and most of them are very dark in color.

Type *cruciata* Fabricius.

Geographical distribution :

1. *alataruna* Goding, Journ. N. Y. Ent. Soc. XXXVI : 44 (1928).	Ecuador.
2. *arietina* Germar, Rev. Silb. III : 308 (1835).	Brazil.
3. *bifida* Fairmaire, Rev. Memb. 267. 14 (1846).	Brazil.
4. *bituberculata* Fowler, B. C. A. 24. 2 (1924). — **Pl. I, fig. 9.**	Mexico, Guatemala, Panama.
5. *bovina* Stal, Rio Jan. Hem. II : 24. 1 (1858)	Brazil.
6. *brachycera* Fairmaire, Rev. Memb. 265. 9 (1846).	Brazil.
7. *capitata* Fairmaire, Rev. Memb. 267. 13 (1846).	Colombia.
8. *cerviceps* Fowler, B. C. A. 24. 3 (1894).	Guatemala, Mexico, Panama.
9. *crassicornis* Fairmaire, Rev. Memb. 264. 5 (1846)	Brazil.
10. *cruciata* Fabricius, Syst. Rhyng. 18. 8 (1803).	Brazil.
11. *cylindricornis* Stal, Bid. Memb. Kan. 277. 2 (1869).	Colombia.
12. *dæmoniaca* Buckton, Mon. Memb. 71 (1903).	Brazil.
13. *exaltata* Walker, List Hom. B. M. 502. 16 (1851).	Brazil
14. *flavopunctata* Buckton, Mon. Memb. 75 (1903).	Brazil.
15. *hædula* Stal, Rio Jan. Hem. II : 25. 4 (1858).	Brazil.
16. *hispida* Fairmaire, Rev. Memb. 265. 7 (1846).	Colombia, Guatemala.
17. *incognita* Buckton, Mon. Memb. 75 (1903).	Brazil.
18. *marquarti* Laporte, Ann. Soc. Ent. France I : 221 (1832).	Brazil.
19. *maculosa* Walker, Ins. Saund. 65 (1858). *punctuosa* Buckton, Mon. Memb. 75 (1903).	Brazil.
20. *nigrocruciata* Stoll, Nat. Leev. Cic. 61 (1780).	Surinam.
21. *nox* Buckton. Mon. Memb. 73 (1903).	Brazil.

Note : For many years the insects of this genus have stood under the name *Pterygia* but Goding (1928) has called attention to the fact that this name was employed for a genus in the *Mollusca* by Bolton in 1798, by Link in 1807 and by Latreille in 1825. The membracid genus must therefore be given the name *Notocera*, Amyot and Serville (1843).

22. ***quadridens*** Fairmaire, Rev. Memb. 264. 4 (1846).	Brazil.
23. ***quinquetuberculata*** Fairmaire, Rev. Memb. 266. 10 (1846).	Venezuela.
24. ***rubicunda*** Buckton, Mon. Memb. 72 (1903). *pehlkei* Schmidt, Stet. Ent. Zeit. LXVII : 326 (1906).	Brazil, Colombia.
25. ***satanas*** Lesson, Ill. Zool. Pl. 56, fig. 2 (1831). *subsimilis* Walker, List Hom. B. M. Suppl. 128 (1858). *concolor* Buckton, Mon. Memb. 73 (1903).	Brazil.
26. ***spinidorsa*** Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 171 (1929).	Ecuador.
27. ***tenuicornis*** Buckton, Mon. Memb. 263. 2 (1903).	Brazil.
28. ***tripodia*** Fairmaire, Rev. Memb. 263. 2 (1846).	Brazil.
29. ***tuberosa*** Fairmaire, Rev. Memb. 266. 11 (1846).	Argentina.
30. ***uropigii*** Buckton, Mon. Memb. 82 (1903).	Brazil, Guiana.

11. GENUS SCALMORPHUS FOWLER

Scalmorphus Fowler, B. C. A. II : 22 (1894).

Characters : Fowler separated this genus from *Philya* on the basis of the diamond-shaped appearance of the pronotum as viewed from above, and the strongly reticulate tegmina. These characters seem to be sufficient for the recognition of the genus. The single porrect pronotal horn is gradually acuminate, and the posterior process is likewise narrowed from its base to a very sharp point. The head and the first two pairs of tibiæ are broadly foliaceous. The tegmina are hyaline and the cells are inclined to much irregularity.

Type *reticulatus* Fowler.

Geographical distribution : Only two species have been described for the genus and both of these apparently rare. One is the type species and the other was described by Ball from Chiricahua Mountains.

1. ***minutus*** Ball, Proc. Biol. Soc. Wash. XLVI : 29 (1933).	United States.
2. ***reticulatus*** Fowler, B. C. A. 23. 1 (1894). — **Pl. 1, fig. 10.**	Guatemala.

12. GENUS MULTAREIS GODING

Multareis Goding, Can. Ent. XXVII : 274 (1895).

Characters : Distinguished by the very reticulate tegmina in which the multicellular condition is not limited to the apical area but extends throughout the tegmen. The tegmina are broad, rounded, and translucent or opaque. If horns are present, they consist of a pair of short, blunt suprahumerals, but the presence or absence of horns is not constant within a species in either sex. The head and prothorax are roughly sculptured and the tibiæ are only moderately flattened. The insects are very small in size and all of the described species are brownish in color.

Type *cornutus* Goding.

Geographical distribution : The three species which have been described in this genus are all from western United States and Lower California as follows :

1. *cornutus* Goding, Can. Ent. XXVII : 274 (1895). — **Pl. I, fig. 11.** California, Utah.
2. *digitatus* Van Duzee, Calif. Acad. Sci. XII : 11. 170 (1923). California, Utah, Lower California.
3. *planifrons* Van Duzee, Calif. Acad. Sci. XII : 11. 170 (1923). California, Lower California, San Marcos Isl.

GENERA OF TRIBE BOLBONOTINI GODING

I. *Body globular; rugose and carinate*
 A. *Tegmina with two discoidal cells* . . . . BOLBONOTA A. & S.
 B. *Tegmina with four discoidal cells* . . . . BOLBONOTODES Fowler.
II. *Body elongate or triangular*
 A. *Tegmina with three discoidal cells; metopidium carinate above eyes*
  1. *Dorsum straight* . . . . ERECHTIA Walker.
  2. *Dorsum strongly sinuate* . . . . TYLOPELTA Fowler.
 B. *Tegmina with two discoidal cells; metopidium smooth above eyes*
  1. *Tegmina entirely free; dorsum straight* . . . . LEIOSCYTA Fowler.
  2. *Tegmina almost entirely covered by sides of pronotum; dorsum sinuate* . . TAUNAYA da Fonseca.

13. GENUS BOLBONOTA AMYOT AND SERVILLE

Bolbonota Amyot and Serville, Hémip. 537 (1843).
Tetraplatis Walker, List Hom. B. M. 77 (1851).
Tubercunota Goding, Can. Ent. XXV : 55 (1893).
Bulbonota Kirkaldy, Ent. XXXVI : 232 (1903).

Characters : This is one of the genera which in the opinion of the Natural Selectionists offers a good illustration of the resemblance of insects to seeds, and, indeed, these insects do look very much like small, shriveled, wrinkled seeds in their shape and sculpturing. In fact, the small size, globular form, and crinkled and corrugated appearance of the pronotum are characters which readily distinguish this genus and the closely related genus *Bolbonotodes* from all other Membracidæ. Other characters are the absence of pronotal horns, the broadly flattened head and tibiæ, and the particular fact that the tegmina have only two discoidal cells. The species are all small in size and usually very dark in color.

Type *nisus* Germar.

Geographical distribution : The genus is limited to Central and South America from which regions a considerable number of species have been described. However, since most of these species were described on the basis of size and on the appearance of the corrugated surface of the pronotum, and since these characters vary greatly even within a species, we are suspicious that all of the species here listed may not be valid.

1. *aspidistræ* Haviland, Zoologica VI : 3. 241 (1925). Guiana.
2. *aureosericea* Stal, Rio Jan. Hem. II : 24. 2 (1858). Brazil.
3. *auripennis* Fairmaire, Rev. Memb. 259. 7 (1846) Brazil.
4. *bispinifera* Goding, Can. Ent. XXV : 55. 6 (1893). West Indies.

5. *corrugata* Fowler, B. C. A. 19. 5 (1894). *minor* Fowler, B. C. A. 19. 5. (1894).	Panama, Honduras, Guiana, West Indies.
6. *cuneata* Fowler, B. C. A. 17. 2. (1894).	Mexico, Honduras, Guatemala, Costa Rica, Panama.
7. *digesta* Buckton, Mon. Memb. 64. (1903).	Brazil.
8. *dubiosa* (nom. nov.) Van Duzee, Can. Ent. XLVI : 389 (1914). *aurosericea* (preoccupied) Fowler, Trans. Ent. Soc. Lond. 417 (1894).	Mexico.
9 *globosa* Fairmaire, Rev. Memb. 257. 1 (1846).	Colombia.
10. *inæqualis* Fabricius, Syst. Rhyng. 22. 28 (1803).	Brazil, Panama, Guiana.
11. *inconspicua* Fowler, B. C. A. 18. 4 (1894).	Mexico, Guatemala
12. *insignis* Fowler, B. C. A. 17. 1 (1894).	Mexico, Honduras, Guatemala, Costa Rica, Panama.
13. *lutea* Funkhouser, Can. Ent. XLVI : 260. 4 (1914).	Brazil.
14. *melæna* Germar, Rev. Silb. III : 129. 20 (1835). *flavicans* Fairmaire, Rev. Memb. 258. 5 (1846).	Brazil.
15. *nigrata* Funkhouser, Can. Ent. XLVI : 361. 5 (1914).	Bolivia, Costa Rica.
16. *nisus* Germar, Rev. Silb. III : 229. 2 (1835).	Brazil.
17. *pictipennis* Fairmaire, Rev. Memb. 258. 3 (1846). — **Pl. 1, fig. 12.** *atomarius* Walker, List Hom. B. M. 510. 1 (1851).	Brazil, Mexico, Guatemala, Panama, Ecuador, Colombia, Guiana.
18. *plicata* Buckton, Mon. Memb. 63 (1903).	Ecuador.
19. *pusilla* Fairmaire, Rev. Memb. 258. 1 (1846).	Colombia.
20. *pusio* Germar, Rev. Silb. III : 230. 23 (1835).	Brazil.
21. *quadripunctata* Buckton, Mon. Memb. 65 (1903).	Brazil.
22. *quinquelineata* Buckton, Mon. Memb. 65 (1903).	Unknown.
23. *rubritarsa* Buckton, Mon. Memb. 66 (1903).	Brazil.
24. *rufonotata* Fowler, Trans. Lond. Ent. Soc. 416 (1894).	Colombia.
25. *scabricula* Walker, Ins. Saund. 75 (1858).	Unknown.
26. *tuberculata* Fabricius, Coq. Ill. : Ins. 78 (1801).	Brazil.

14. Genus BOLBONOTODES Fowler

Bolbonotodes Fowler, B. C. A. II : 20 (1894).

Characters : This genus was erected to accommodate a single species which differed from the species of *Bolbonota* in having four discoidal cells in the tegmina and five apical cells in the wing. Except for its slightly larger size, there seem to be no other generic differences. We have never seen this insect and are using Fowler's figure as an aid to recognition.

Type *ganglbaueri* Fowler.

Geographical distribution :

1. *ganglbaueri* Fowler, B. C. A. 20. 1 (1894). — **Pl. 2, fig. 13.**	Mexico.

15. Genus ERECHTIA Walker

Erechtia Walker, List Hom. B. M. Suppl. 141 (1858).
Tropidoscyta Stal, Hem. Fabr. II : 44 (1869).

Characters : Insects of small size with triangular bodies and with the pronotum usually angulate in front but without an anterior process. The sides of the pronotum are carinate, usually with three parallel ridges, and the metopidium is strongly ridged above the eyes. The dorsal margin is straight and slopes gradually from the top of the metopidium to the tip of the posterior process. The tegmina are entirely free, almost entirely hyaline, and have five apical and three discoidal cells. All three pairs of tibiæ are broadly foliaceous. In his original description of the genus, Walker calls attention to the « three parallel dorsal keels; the lateral pair abbreviated; the middle one continued to the acute tip » but this condition is also occasionally found in the closely related genus *Tylopelta*.

Type *bicolor* Walker.

Geographical distribution :

1. *abbreviata* Fabricius, Syst. Rhyng. 23. 35 (1803).	Brazil.
2. *albipes* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1 (1922).	Brazil.
3. *bicolor* Walker, List Hom. B. M. Suppl. 141 (1858).	Brazil.
4. *binotata* Funkhouser, Can. Ent. XLVI : 359 (1914).	Brazil.
5. *brevis* Goding, Journ. N. Y. Ent. Soc. XXXVI : 40 (1928).	Ecuador.
6. *brunneidorsata* Funkhouser, Can. Ent. XLVI : 357 (1914).	Peru.
7. *bulbosa* Haviland, Zoologica VI : 3 (1925).	British Guiana.
8. *carbonaria* Germar, Rev. Silb. III : 228. 19 (1835).	Brazil.
9. *decipiens* Fairmaire, Rev. Memb. 254. 41 (1846).	Brazil.
10. *gibbosa* De Geer, Hist Ins. III : 211. 13 (1773). *tricarinatus* Fabricius, Syst. Rhyng. 23. 24 (1803). *bicristata* Fairmaire, Rev. Memb. 256. 47 (1846).	Brazil.
11. *gilvitarsi* Goding, Journ. N. Y. Ent. Soc. XXXVI : 39 (1928).	Ecuador.
12. *guyanensis* Buckton, Mon. Memb. 54 (1903).	Brazil, British Guiana.
13. *immaculata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 3 (1922).	Argentina.
14. *longa* Walker, List Hom. B. M. 486. 28 (1851).	Brazil.
15. *maculata* Funkhouser, Can. Ent. XLVI : 360 (1914).	Peru.
16. *minor* Buckton, Mon. Memb. 53 (1903).	Brazil .
17. *minuta* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1 (1922).	Brazil.
18. *minutissima* Goding, Journ. N. Y. Ent. Soc. XXXVI : 40 (1928).	Ecuador.
19. *neglecta* Haviland, Zoologica VI : 3. 227 (1925).	British Guiana.
20. *nigrovittata* Fairmaire, Rev. Memb. 255. 44 (1846).	French Guiana.
21. *ophthalmica* Fairmaire, Rev. Memb. 255. 43 (1846).	Colombia.
22. *pœcila* Germar, Mag. Ent. IV : 24. 23 (1818).	Brazil.
23. *pruinosa* Haviland, Zoologica VI : 3. 237 (1925).	British Guiana.
24. *pulchella* Goding, Journ. N. Y. Ent. Soc. XXXVI : 40 (1928).	Ecuador.

25. ***sallæi*** Fowler, B. C. A. II : 13. 1 (1894).	Mexico, Guatemala, Panama.
26. ***sanguinolenta*** Fairmaire, Rev. Memb. 255. 46 (1846).	Brazil.
27. ***subtrigona*** Walker, List Hom. B. M. 485. 27 (1851).	Venezuela.
28. ***succedanii*** Buckton, Mon. Memb. 53 (1903). *puncticeps* Goding, Journ. N. Y. Ent. Soc. XXXVI : 219 (1928). — **Pl. 2, fig. 14.**	Ecuador.
29. ***torva*** Germar, Rev. Silb. III : 228. 18 (1835).	Brazil.
30. ***transiens*** Fowler, Ent. Soc. Lond. 415 (1894).	South America.
31. ***tricostata*** Germar, Mag. Ent. IV : 24. 24 (1818).	Brazil.
32. ***trinotata*** Funkhouser, Journ. N.Y. Ent. Soc. XXXVIII : 4. 412 (1930).	Argentina.
33. ***truncata*** Fairmaire, Rev. Memb. 253. 39 (1846).	Argentina, Brazil.
34. ***uniformis*** Fowler, B. C. A. 14. 2 (1894).	Panama.

16. GENUS TYLOPELTA FOWLER

Tylopelta Fowler, B. C. A. II : 15 (1894).

Characters : Closely related to the preceding genus but differing particularly in having the dorsum strongly sinuate, often actually step-like. The body is robust and triangular, the pronotum is angular in front and bears a percurrent median carina and two lateral carinæ on each side. A single short, heavy ridge appears on the metopidium above the eyes. The tegmina are short and broad, not at all concealed by the pronotum, and have five apical and three discoidal cells. Fowler described the cells of the tegmina as « less oblong » than in *Erechtia* but this character is not constant throughout the genus.

Type *gibbera* Stal.

Geographical distribution :

1. ***appendiculata*** da Fonseca, Arquiv. Instit. Biol. VII : 12. 158 (1936).	Brazil.
2. ***brevis*** Van Duzee, Stud. N. A. Memb. 115 (1908).	United States.
3. ***exusta*** Buckton, Mon. Memb. 55 (1903).	Brazil.
4. ***gibbera*** Stal, Hem. Fabr. II : 46. 8 (1869). — **Pl. 2, fig. 15.** *americana* Van Duzee, Stud. N. A. Memb. 114 (1908).	Mexico, Panama, United States.
5. ***monstrosa*** Fairmaire, Rev. Memb. 257. 51 (1846).	Brazil.

17. GENUS LEIOSCYTA FOWLER

Leioscyta Fowler, B. C. A. II : 14 (1894).

Characters : Small, narrow-bodied insects which in general facies resemble those of the two preceding genera but which differ from both in having only two discoidal cells in the tegmina and in the metopidium smooth above the eyes. The pronotum is more elongate than in *Erechtia* or *Tylopelta* and the dorsal margin is always straight. A percurrent median carina is present but the sides of the pronotum are usually smooth or with not more than one ridge on each side. The tegmina are entirely free, with five apical cells but only two discoidals and with a broad apical limbus. The head is subquadrate and flattened with the ocelli very poorly developed. The first two pairs of tibiæ are foliaceous.

Type *pallidifrontis* Stal.

Geographical distribution :

1. *beebei* Haviland, Zoologica VI : 3. 239 (1925).	British Guiana.
2. *bituberculata* Goding, Journ. N. Y. Ent. Soc. XXXVI : 38 (1928).	Ecuador.
3. *brunnea* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 268 (1919).	Peru.
4. *cornutula* Stal, Hem. Fabr. II : 46. 4 (1869).	Mexico.
5. *fasciapennis* Goding, Journ. N. Y. Ent. Soc. XXXVI : 39 (1928).	Ecuador.
6. *ferruginata* Funkhouser, Journ. N. Y. Ent Soc. XXX : 1. 6 (1922).	Brazil.
7. *ferruginipennis* Goding, Cat. Memb. N. A. 468. 236 (1894). — **Pl. 2, fig. 16.**	United States.
8. *humeralis* Goding, Journ. N. Y. Ent. Soc. XXXVIII : 91 (1930).	Brazil.
9. *minima* Goding, Journ. N. Y. Ent. Soc. XXXVI : 38 (1928).	Ecuador.
10. *niger* da Fonseca, Arquiv. Instit. Biol. VII : 12. 157 (1936).	Brazil.
11. *nigra* Goding, Journ. N. Y. Ent. Soc. XXXVI : 38 (1928).	Ecuador.
12. *nitida* Fowler, B. C. A. II : 14. 3 (1894).	Panama.
13. *pallidipennis* Stal, Hem. Fabr. II : 46. 3 (1869).	Mexico, United States.
14. *pallipes* Goding, Journ. N. Y. Ent. Soc. XXXVI : 39 (1928).	Ecuador.
15. *pulchella* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 411 (1930).	Brazil.
16. *rufidorsa* Goding, Journ. N. Y. Ent. Soc. XXXVI : 37 (1928).	Ecuador.
17. *spiralis* Haviland, Zoologica VI : 3. 240 (1925).	British Guiana.
18. *trimaculata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 5 (1922).	Peru, Brazil.
19. *trinotata* Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 167 (1929).	United States.

18. GENUS TAUNAYA DA FONSECA

Taunaya da Fonseca, Rev. Ent. IV : 3. 351 (1934).

Characters : The type species of this monotypic genus bears a strong superficial resemblance to the forms of *Bolbonota* but may at once be distinguished by the fact that in *Taunaya* the tegmina are almost entirely covered by the sides of the pronotum while in *Bolbonota* the tegmina are entirely free. The same character serves to separate the genus from its more nearly related genus *Leioscyta* with the additional difference that in *Leioscyta* the dorsum is straight while in *Taunaya* it is distinctly sinuate. The tegmina have four apical cells, all truncate at the base, and two discoidal cells.

Type *rugosa* da Fonseca.

Geographical distribution :

1. *rugosa* da Fonseca, Rev. Ent. IV : 3. 352 (1934). — **Pl. 2, fig. 17.**	Brazil.

Subf. PLATYCOTINÆ Subf. nov.

TRIBES OF THE SUBF. PLATYCOTINÆ SUBF. NOV.

I. *Under wings with four apical cells* . . . . Potniini Goding.

II. *Under wings with three apical cells* . . . . Platycotini Tribus nov.

GENERA OF THE TRIBE POTNIINI GODING

I. *Humeral angles produced into long horns* . . . . Alchisme Kirkaldy.

II. *Humeral angles not produced into horns or spines.*

A. *Pronotum without dorsal processes* . . . . Ochropepla Stal.

B. *Pronotum with dorsal processes or frontal horn*

1. *Frontal horn sharp; sides of pronotum ridged; posterior process long, reaching to tips of tegmina.* . . . . Aconophoroides Fowler.

2. *Frontal horn blunt; sides of pronotum smooth; posterior process short, not reaching beyond end of abdomen* . . . . Potnia Stal.

19. Genus ALCHISME Kirkaldy

Alchisme Kirkaldy, Entom. XXXVII : 279 (1904).
Triquetra (preoccupied) Fairmaire, Rev. Memb. 279 (1846).
Microschema Stal, Hem. Fabr. II : 37 (1869).

Characters : Fairmaire erected his old genus *Triquetra* on the following characters which, of course, still apply : Head large, triangular, slightly rounded at the summit; ocelli equidistant from each other and from the eyes; tegmina slightly notched, free at base but slightly covered by pronotum at extremities; prothorax having the shoulders dilated in long points; posterior process reaching tips of tegmina. Of these characters, the long, sharp humeral processes are most satisfactory for separating the genus from the other *Potniini* while the four apical cells of the hind wing distinguish it from the *Platycotini.* The insects of this genus are all of large size, among the largest of the Membracidæ, and are almost without exception greenish in color. They all show, of course, the extremely short hind tarsi which are peculiar to the subfamily.

Type *inermis* Fairmaire.

Geographical distribution :

1. *angustata* Fairmaire, Rev. Memb. 282. 11 (1846). — Colombia, Ecuador.
2. *apicalis* Walker, List Hom. B. M. 518. 4 (1851). — Colombia, Panama.
3. *bos* Fairmaire, Rev. Memb. 282. 10 (1846). — Colombia, Ecuador.
   obtusa Buckton, Mon. Memb. 91 (1903).
4. *costaricensis* Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 171 (1929). — Costa Rica.
5. *elevata* Goding, Amer. Mus. Novit. 10 (1930). — Bolivia.

6. *grossa* Fairmaire, Rev. Memb. 280. 3 (1846). — **Pl. 2, fig. 18.** — Venezuela, Colombia, Guatemala, Ecuador, Mexico, Panama.
   virgata, Fairmaire, Rev. Memb. 282. 9 (1846).
   virescens Fairmaire, Rev. Memb. 281. 8 (1846).
   terribilis Walker, Ins. Saund. 66 (1858).
   obtusa Fowler, Trans. Ent. Soc Lond. 417 (1894).
7. *inermis* Fairmaire, Rev. Memb. 280. 1 (1846). — Colombia, Ecuador.
   tridentata Fairmaire, Rev. Memb 280. 4 (1846).
   recurva Stal, Bid. Memb. Kan. 266. 6 (1869).
   nigrostrigata Buckton, Mon. Memb. 92 (1903).
   mucronata Buckton, Trans. Linn. Soc. Zool. IX : 330 (1905).
8. *intermedia* Distant, Ent. Mag. 223 (1881). — Colombia.
9. *nigrocarinata* Fairmaire, Rev. Memb. 280. 2 (1846). — Colombia, Ecuador.
10. *obscura* Walker, List Hom B. M. 517. 3 (1851). — Brazil, Ecuador.
    submaculata Buckton, Mon. Memb. 92 (1903).
11. *projecta* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 414 (1930). — Peru.
12. *rubrocostata* Spinola, Hist. Chile Zool. VII : 272. 3 (1852). — Chile, Argentina.
    unicolor Signoret, Ann. Ent. Soc. France III : 584 (1864).
13. *truncaticornis* Germar, Rev. Silb. III : 244. 11 (1835). — Brazil, Colombia.
    testacea Fairmaire, Rev. Memb. 281. 7 (1846).
14. *turrita* Germar, Rev. Silb. III : 243. 10 (1835). — Brazil.
    insipida Buckton, Mon. Memb. 93 (1903)
15. *ustulata* Fairmaire, Rev. Memb. 281. 5 (1846). — Colombia, Ecuador, Venezuela.
16. *veruta* Fowler, B. C. A. II : 33. 2 (1894). — Panama.

20. Genus OCHROPEPLA Stal

Ochropepla Stal, Bid. Memb. Kan. 268 (1869).
Microschema Stal, Hem. Fabr. II : 37 (1869).

Characters : Body subtriangular, short and broad; humeral angles not produced; pronotum without dorsal processes; head equal in width to apex of thorax; ocelli equidistant from each other and from the eyes; median carina percurrent; posterior process extending about to end of abdomen; tegmina with two discoidal cells; hind wings with four apical cells. Insects of medium size and inconspicuous colors.

Stal separated this genus from his genus *Potnia* by the absence of the pronotal horn and from *Hoplophora* Germar (preoccupied, now *Metcalfiella* Goding) by the four apical cells of the under wing.

Type *corrosa* Fairmaire.

Geographical distribution :

1. *carinata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 11 (1922). — Brazil.
2. *concolor* Walker, List Hom. B. M. 514. 17 (1851). — Colombia.
3. *corrosa* Fairmaire, Rev. Memb. 272. 11 (1846). — **Pl. 2, fig. 19.** — Colombia, Panama.
   punctum Fairmaire, Rev. Memb. 272. 12 (1846).
4. *dubia* Fowler, B. C. A. II : 45. 4 (1894). — Panama.
5. *hebes* Walker, List Hom. B. M. 525. 17 (1851). — Colombia.
6. *inæqualis* Fowler, B. C. A. II : 44. 3 (1894). — Panama.
7. *pallens* Stal, Bid. Memb. Kan. 268. 1 (1869). — Mexico.

21. Genus ACONOPHOROIDES Fowler

Aconophoroides Fowler, B. C. A. II : 47 (1894).

Characters : Large brightly colored insects with a sharp pronotal horn and a superficial resemblance to the *Aconophora* but at once distinguished from that group by the minute hind tarsi. The diagnostic characters of the genus are the heavy, robust body; humeral angles not extended into spines; pronotum with a strong sharp anterior process; sides of pronotum strongly carinate; posterior process long, extending to tips of tegmina; under wings with four apical cells; tegmina entirely free with five apical and two discoidal cells.

Type *gladiator* Walker.

Geographical distribution :

1. *gladiator* Walker, List Hom. B. M. 567. 38 (1851). — **Pl. 2, fig. 20.** Brazil, Panama, British Guiana.
   lata Walker, Ins. Saund. 69 (1858).
2. *projecta* Funkhouser, Can. Ent. XLVI : 505. 10 (1914). British Guiana.
3. *rectispina* Funkhouser, Can. Ent. XLVI : 404. 9 (1914). Bolivia.

22. Genus POTNIA Stal

Potnia Stal, Ber. Ent. Zeit. X : 388 (1866).

Characters : Medium sized insects of somber colors, closely related to the preceding genus but differing in having a blunt pronotal horn, the sides of the thorax smooth and the posterior process short, never reaching the apex of the tegmina and usually not extending as far as the end of the abdomen. The head is subquadrate and roughly sculptured with the ocelli equidistant from each other and from the eyes. The pronotum is generally very coarsely punctate. The tegmina are hyaline with five apical and two discoidal cells. The hind wings have four apical cells.

Type *venosa* Germar.

Geographical distribution :

1. *affinis* Buckton, Mon. Memb. 103 (1903). Colombia.
2. *brevicornis* Fowler, B. C. A. II : 46. 2 (1894). Panama.
3. *granadensis* Fairmaire, Rev. Memb. 273. 15 (1846). Colombia.
4. *jaculus* Fabricius, Syst. Rhyng. 12. 27 (1803) Brazil.
5. *jansoni* Fowler, Trans. Ent. Soc. Lond. 498 (1894). British Guiana.
6. *perobtusa* Fowler, Trans. Ent. Soc. Lond. 498 (1894). Brazil.
7. *venosa* Germar, Mag. Ent. IV : 19. 16 (1818). — **Pl. 2, fig. 21.** Brazil

GENERA OF THE TRIBE PLATYCOTINI TRIBUS NOV.

I. *Posterior process very short, not reaching tip of abdomen.*

A. *Head broad, as wide as base of posterior process; posterior process long and narrow.*

1. *Usually but not always a porrect pronotal horn or protuberance; tegmina short, extending for not more than one-third their length beyond posterior process* . . . . PLATYCOTIS Stal.
2. *Pronotal horn always present but extending directly forward, the upper margin even with the dorsum; tegmina long, extending for at least half their length beyond posterior process* . . . . ORTHOPLOPHORA Fowler.

B. *Head narrow, not as wide as base of posterior process; posterior process short and shield-shaped*

1. *Pronotum with porrect frontal horn*. . . . . STALOTYPA Metcalf.
2. *Pronotum without frontal horn* . . . . METCALFIELLA Goding.

II. *Posterior process long, usually reaching tips of tegmina* . . . . UMBONIA Burmeister.

23. GENUS PLATYCOTIS STAL

Platycotis Stal, Hem. Fabr. II : 36 (1869).

Characters : Large, heavy-bodied, triangularly-shaped insects often marked with stripes and usually, but not always, bearing a frontal horn. The presence or absence of this pronotal horn varies even within a species; it is not a sexual character nor is it indicative of any geographical location. When present, the horn is always porrect or more or less upright, never extending directly forward. The head is very broad, at least twice as broad as high, with the ocelli much nearer to each other than to the eyes. The posterior process is short and rather flat, seldom reaching the end of the abdomen. The tegmina, likewise, are short, extending only slightly beyond the posterior process and have five apical and two discoidal cells. The hind wings have three apical cells. The hind tarsi are ridiculously small as compared with the tarsi of the front and middle pairs of legs.

Type *vittata* Fabricius.

Geographical distribution :

1. *acutangula* Stal, Bid. Memb. Kan. 263. 2 (1869). — Mexico.
2. *cornuta* Plummer, Ann. Ent. Soc. Amer. XXIX : 4. 683 (1936). — Mexico.
3. *discreta* Fowler, B. C. A. II : 42. 3 (1894). — Guatemala.
4. *histrionica* Stal, Hem. Mex. 69. 414 (1864). — Mexico.
5. *maritimus* Van Duzee, Proc. Calif. Acad. Sci. VII : 11. 287 (1917). — California.
   minax Goding, Ent. News. III : 109 (1892).
   asodalis Goding, Ent. News, III : 110 (1892).
6. *nigrorufa* Walker, List Hom. B. M. Suppl. 143 (1858). — Mexico, Guatemala.
7. *spreta* Goding, Cat. Memb. N. A. 456. 197. (1894). — Mexico.
8. *straminicolor* Stal, Rio Jan. Hem. II : 25. 4 (1858). — Brazil.
9. *tuberculata* Fairmaire, Rev. Memb. 273. 18 (1846). — Mexico, California.
   ornata Fairmaire, Rev. Memb. 274. 19 (1846).
10. *vittata* Fabricius, Syst. Rhyng. 20. 23 (1803). — **Pl. 2, fig. 22.** — Brazil, Mexico, United States.
    sagittata Germar, Mag. Ent. IV : 19. 15 (1821).
    belligera Say, Journ. Acad. Nat. Sci. Phila. VI : 302 (1824)
    quadrivittata Say, Journ. Acad Nat. Sci. Phila. VI : 300 (1824).

quadrilineata Germar, Rev. Silb. III : 241. 3 (1835).
humilis Walker, List Hom. B M. 514. 18 (1851).
guttifera Walker, List Hom. B M. 539. 15 (1851).
rubrivittata Walker, List Hom. B. M. 537. 11 (1851).
porrecta Walker, List Hom. B. M. 538. 12 (1851).
viridescens Walker, List Hom. B. M. 538. 13 (1851).
lineosa Walker, List Hom. B. M. Suppl. 134 (1858).
nigromaculata Provancher, Pet. Faun. Can. III : 251. 2 (1886).
nigrolineata Provancher, Pet. Faun. Can. III : 251. 1 (1886).

24. Genus ORTHOPLOPHORA Fowler

Orthoplophora Fowler, B. C. A. II : 46 (1894).

Characters : This genus was erected for the accommodation of a single species and no others have ever been described in the genus. It is to be separated from *Platycotis* by the quite horizontal or even slightly deflexed frontal horn and by the very long tegmina. Superficially it resembles an *Umbonia* but differs from that genus in the length and character of the pronotal process. We have never seen *O. salvini*, the type of the genus, and are therefore reproducing Fowler's figure which should be sufficient for its identification.

Type *salvini* Fowler.

Geographical distribution : Known only from a single species as follows :

1. *salvini* Fowler, B. C. A. II : 47. 1 (1894). — **Pl. 2, fig. 23.** Mexico.

25. Genus STALOTYPA Metcalf

Stalotypa Metcalf, Ent. News XXXVIII : 15 (1927).
Enchotypa Stal, Hem. Fabr. II : 37 (1869).

Characters : Rather narrow-bodied insects with a thin compressed oblique frontal horn and a very short posterior process which does not reach to the tip of the abdomen. The head is narrow, not as broad as the base of the posterior process. The prothorax in roughly sculptured and coarsely punctate. The tegmina have five apical and two discoidal cells and the hind wings have three apical cells.

Type *fairmairei* Guerin.

Geographical distribution : The genus is known only from the Island of Cuba with two species as follows :

1. *concinna* Fowler, Trans. Ent. Soc. Lond. II : 419 (1894). Cuba.
2. *fairmairei* Guerin, Hist. Cuba Ins. 181 (1856). Cuba.

Note : When Stal proposed his subgenus *Enchotypa* he made a mistake in naming as the type « *granadensis* Guerin » instead of « *fairmairei* Guerin ». He later (1869) corrected this error but as Metcalf (1927) correctly pointed out, the correction cannot stand according to the rule of the Entomological Code which states : « The gentoype of a monobasic genus is the only specific name cited irrespective of misidentification ». The species *granadensis* belongs in the genus *Potnia* but *fairmairei* represents the group which Stal had in mind. Therefore the name *Stalotypa* as proposed by Metcalf must be accepted.

26. Genus METCALFIELLA Goding

Metcalfiella Goding, Journ. N. Y. Ent. Soc. XXXVII : 7 (1929).
Hoplophora (preoccupied) Germar, Rev. Silb. I : 177 (1833).
Hoplophorion (nom. nov.) Kirkaldy, Ent. XXXIV : 6 (1901).

Characters : The genus as now delimited includes those species of the subfamily which are robust, triangular, with no pronotal horn, a very short shield-shaped posterior process, a narrow head and with the hind wings showing three apical cells. The type species, *pertusa* Germar, which must be consulted as a basis for generic characters, shows considerable variation in size and in configuration of the pro-thorax but agrees entirely with the above named characters. The pronotum is usually very roughly sculptured with irregular swellings and coarse punctuation. The head is twice as broad as long with the ocelli large and prominent and much nearer to each other than to the eyes. The humeral angles are broadly auriculate. The edges of the pronotum are marked with red. The tegmina are hyaline with five apical and two discoidal cells.

Type *pertusa* Germar.

Geographical distribution :

1. *carinulata* Schmidt, Stet. Ent. Zeit. LXVII : 364 (1906).	Colombia.
2. *cinerea* Fairmaire, Rev. Memb. 272. 13 (1846).	Mexico, Guatemala.
3. *concina* Fowler, B. C. A. II : 41. 6 (1894). *concisa* (sic) Buckton, Mon. Memb. 249 (1903).	Panama.
4. *cribum* Fairmaire, Rev. Memb. 272. 10 (1846).	Colombia.
5. *disparipes* Fowler, B. C. A. II : 40. 4 (1894).	Guatemala.
6. *erecta* Schmidt, Stet. Ent. Zeit. LXVII : 364 (1906). *nigromaculatum* Schmidt, Stet. Ent. Zeit. LXVII : 364 (1906).	Ecuador.
7. *gigantea* Fairmaire, Rev. Memb. 269. 1 (1846).	Colombia, Ecuador.
8. *gloveri* Goding, Cat. Memb. N. A. 457. 199 (1894).	Unknown.
9. *hænschi* Schmidt, Stet. Ent. Zeit. LXVII : 365 (1906)	Ecuador.
10. *monogramma* Germar, Rev. Silb. III : 242. 6 (1835). *sanguinosa* Fairmaire, Rev. Memb. 270. 2 (1846). *apriformis* Buckton, Mon. Memb. 95 (1903).	Mexico, Guatemala.
11. *obtusa* Stal, Rio Jan. Hem. II : 25. 3 (1862).	Brazil.
12. *ohansiana* Schmidt, Stet. Ent. Zeit. LXVII : 366 (1906).	Ecuador.
13. *pertusa* Germar, Rev. Silb. III : 242. 5 (1835). — **Pl. 2, fig. 24.** *porosa* Walker, List Hom. B. M. 513. 16 (1851).	Brazil.
14. *pubescens* Buckton, Mon. Memb. 96 (1903).	Colombia.

Note : This genus has had a checkered nomenclatorial career of misadventure. The characters on which Germar described his genus *Hoplophora* were so broad and indefinite that almost from the first many species were assigned to the genus but were soon afterward removed to other genera such as *Ochropepla*, *Platycotis* and *Potnia* which resulted in much confusion. Then Kirkaldy (1901) called attention to the fact that the name « Hoplophora » was preoccupied and sought to remedy the matter by proposing a new name « Hoplophorion ». This name was accepted and the catalogues and collections were rearranged to conform. However, in 1929, Goding identified *triangulum* Germar, which had been designated by Germar as the type of his genus *Hoplophora*, as congeneric with *corrosa* Fairmaire, the type of *Ochropepla*. Since *Hoplophorion* necessarily included all species congeneric with *corrosa*, this left all of the other species which had been assigned to that genus but which were not congeneric with *corrosa* without a name. Goding proposed the name « Metcalfiella » as a *nomen novum* for such species and this name now obtains — it is hoped without further necessity for change.

15. *rubripes* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 10 (1922). — Colombia, Brazil.

16. *semitecta* Walker, List Hom. B. M. Suppl. 129 (1858). — Brazil, Venezuela.

17. *signoreti* Fowler, B. C. A. 39. 2 (1894). — Mexico.

18. *sordida* Germar, Mag. Ent. IV : 17 (1821). — Brazil.

19. *triangulata* Germar, Mag. Ent. IV : 18. 13 (1821). — Brazil.
   triangularum (sic) Buckton, Mon. Memb. 99 (1903).

20. *unicolor* Fowler, Trans. Ent. Soc. Lond. II : 419 (1894). — Colombia.

21. *variegata* Fairmaire, Rev. Memb. 271. 7 (1846). — Colombia.

22. *vicina* Fairmaire, Rev. Memb. 270. 3 (1846). — Brazil, Ecuador.
   proxima Walker, List Hom. B. M. 513. 15 (1851).
   fimbriata Stal, Rio Jan. Hem. II : 25. 1 (1862).

27. GENUS UMBONIA BURMEISTER

Umbonia Burmeister, Handb. Ent. II : 138 (1835).
Physoplia Amyot and Serville, Hémip. 542 (1843).

Characters : Large, heavy-bodied, usually brightly colored insects characterized by strongly developed dorsal processes, often spine-like, sometimes inflated and swollen, and occasionally marked with stripes of various colors. The diagnostic character which separates this genus from the others of the tribe is the long posterior process, generally acuminate and usually extending to the tips of the tegmina. The head is subtriangular with the clypeus extending well below the inferior margins of the genæ; the ocelli are large, usually elevated, and much nearer to each other than to the eyes. The pronotum is roughly sculptured, coarsely punctate, seldom carinate and often brightly colored. The tegmina are long, narrow, hyaline, with five apical and two discoidal cells and a broad limbus. The hind wings have three apical cells.

This genus is another of those often cited as showing remarkable protective imitation as evidenced by the dorsal processes which are in many species distinctly thorn-like and in others subfoliaceous. The form of the dorsal process shows great variation within a species with the result that a considerable number of forms have been described which have later proved to be synonyms.

Type *spinosa* Fabricius.

Geographical distribution :

1. *amazili* Fairmaire, Rev. Memb. 277. 9 (1846). — Mexico.

2. *ataliba* Fairmaire, Rev. Memb. 278. 11 (1846). — Brazil, Costa Rica.
   lativitta Walker, List Hom. B. M. 520. 15 (1851).

3. *crassicornis* Amyot and Serville, Hémip. 543. 1 (1843). — Mexico, Honduras, Guatemala, Costa Rica, Panama, Brazil, United States.
   nigrata Amyot and Serville, Hémip. 543. 2 (1843).
   orizimbo Fairmaire, Rev. Memb. 277. 7 (1846).
   media Walker, List Hom. B. M. 516. 2 (1851).
   decorata Walker, List Hom. B. M. Suppl. 3 (1858)
   picta Walker, List. Hom. B. M. Suppl. 130 (1858).
   intermedia Walker, Ins. Saund. 66 (1858).
   rectispina Stal, Bid. Memb. Kan. 265. 4 (1869).
   peracea Griffini, Stud. Memb. Umb. 3 (1895).
   camerani Griffini, Stud. Memb. Umb. 3 (1895).

4. *erecta* Goding, Mem. Ecuad. 33. 37 (1920). — Ecuador.

5. *ermanni* Griffini, Stud. Mem. Umb. X : 6 (1895). — Mexico.

6. *gladius* Fairmaire, Rev. Memb. 275. 3 (1846). — Mexico.

7. *lutea* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 10 (1922). — Bolivia.

8. *octolinea* Goding, Amer. Mus. Novit. 9 (1930). — Mexico.

9. *orizabæ* Fowler, B. C. A. II : 37. 6 (1894). — Mexico.

10 *pyramidalis* Fairmaire, Rev. Memb. 277. 8 (1846). — Brazil, Panama.
reducta Walker, List Hom. B. M. 519. 8 (1851).

11. *reclinata* Germar, Rev. Silb. III : 243. 9 (1835). — Mexico, Guatemala, Costa Rica, Brazil.
funesta Stal, Nya. Hem. 249. 1 (1854).
multiformis Walker, List Hom. B. M. Suppl. 129 (1858).
subclivata Buckton, Mon. Memb. 88 (1903).

12. *signoreti* Fairmaire, Rev. Memb. 278. 10 (1846). — Colombia, Honduras.
articularia Buckton, Mon. Memb. 89 (1903).

13. *sordida* Goding, Amer. Mus. Nov. 10 (1930). — Panama.

14. *spinosa* Fabricius, Syst. Ent. 675. 4 (1775). — **Pl. 2, fig. 25.** — Brazil, Surinam, Guatemala, Mexico, Panama, British Guiana.
armata Olivier, Enc. Meth. VII : 668. 3 (1792).
curvispina Stal, Bid. Memb. Kan. 265. 8 (1869).

Subf. DARNINÆ Stal

TRIBES OF THE SUBFAMILY DARNINÆ STAL

I. *Pronotum without horns or spines* . . . . Darnini Goding.

II. *Pronotum with horns or spines*

A. *Pronotum having a single frontal or dorsal horn or angle; humeral angles sometimes produced into spines* . . . . Aconophorini Goding.

B. *Pronotum with two suprahumeral horns*

1. *Posterior process without spines or nodules* . . . . Hemikypthini Tribus nov.

2. *Posterior process with spines and inflated nodules* . . . . Heteronotini Goding.

GENERA OF THE TRIBE DARNINI GODING

I. *Tegmina largely covered by sides of pronotum*

A. *Humeral angles not extended into horns or spines*

1. *Corium with three longitudinal veins, radius forked near middle of tegmina*

a. *Ocelli equidistant from each other and from the eyes*

b. *At least half of tegmina exposed* . . . . Darnis Fabricius.

bb. *Less than one-third of tegmina exposed* . . . . Hebeticoides Fowler.

aa. *Ocelli much nearer to each other than to the eyes* . . . . Ochrolomia Stal.

2. *Corium with two longitudinal veins, both forked near middle of tegmina*

a. *Sides of pronotum produced in lobes behind each eye*

b. *Tegmina almost entirely covered by pronotum* . . . . Hebetica Stal.

bb. *Tegmina not more than half covered by pronotum* . . . . Stictopelta Stal.

aa. *No postocular lobes on pronotum* . . . . Alobia Stal.

B. *Humeral angles extended into horns, spines or processes*

1. *Head extended obliquely forward; posterior process trinodose* . . . . . Cyphotes Burmeister.

2. *Front of head straight, vertical; posterior process not nodose*

a. *Posterior process very much swollen in middle; lateral margins inflexed; auriculate humerals strongly produced* . . . . Aspona Stal.

aa. *Posterior process inflated at base; lateral margins not inflexed; humerals weakly produced* . . . . Hypheus Stal.

II. *Tegmina almost entirely free*

A. *Corium with more than one discoidal cell*

1. *Corium with three discoidal cells*

a. *Pronotum highly elevated* . . . . Atypa Laporte.

aa. *Pronotum convex, not elevated* . . . . PARADARNOIDES Fowler.

2. *Corium with two discoidal cells*

a. *Pronotum elevated and compressed behind humerals* . . . . . . CYMBOMORPHA Stal.

aa. *Pronotum regularly convex*

b. *Posterior process curved upward* . . . . PARAGARGARA Goding.

bb. *Posterior process straight* . . . . EUMELA Stal.

B. *Corium with one discoidal cell*

1. *Corium with no transverse vein in middle of tegmina*

a. *Dorsum tricarinate* . . . . IRIA Stal.

aa. *Dorsum unicarinate*

b. *Posterior process broad, obtuse* . . . . RHEXIA Stal.

bb. *Posterior process slender, acute*

c. *Apical veins of tegmina curved* . . . . SMILIORHACHIS Fairm.

cc. *Apical veins of tegmina straight*

d. *Tegmina hyaline* . . . . DARNOIDES Fairmaire.

dd. *Tegmina semiopaque* . . . . BRACHYTALIS M. and B.

2. *Corium with a transverse vein in middle of tegmina* . . . . PROCYRTA Stal.

28. GENUS DARNIS FABRICIUS

Darnis Fabricius, Syst. Rhyng. 25 (1803).
Dectonura Butler, Cist. Ent. II : 342 (1878).

Characters : Medium-sized to large insects with the bodies so covered by the hard, usually shining, pronotum as to give them a beetle-like appearance. The pronotum extends downward over the sides so far as to cover about half of the tegmina but is entirely smooth, often brilliantly colored, and has no processes of any kind. The head is obovate, about twice as broad as high and the clypeus does not extend below the inferior margins of the genae; the ocelli are prominent, about equidistant from each other and from the eyes and situated above a line drawn through the centers of the eyes. The posterior process is heavy, rounded above, and acuminate, and extends just about to the tips of the tegmina. The tegmina are hyaline with five apical and two discoidal cells and a broad limbus; the corium shows three distinct longitudinal veins with the outer one forked near the middle of the tegmen.

This was the type genus of the subfamily and has had assigned to it at various times seventy different species. The genus has now been split up, however, and practically all of these species have been removed to other genera, so that at present only eight remain which are considered congeneric with *lateralis* Fabricius, the type species of the genus.

Type *lateralis* Fabricius.

Geographical distribution : A Central and South American genus with species recorded as follows :

1. *cuneata* Butler, Cist. Ent. II : 341. 2 (1878). South America.
2. *cyclops* Fairmaire, Rev. Memb. 479. 1 (1846). Colombia.
3. *lateralis* Fabricius, Syst. Rhyng. II : 27. 6 (1803). Brazil, Mexico.
4. *laticauda* Fairmaire, Rev. Memb. 483. 22 (1846). Brazil.

5. *latior* Fowler, B. C. A. II : 52. 2 (1894). — Panama, British Guiana.

6. *olivacea* Fabricius, Syst. Rhyng. II : 28. 8 (1803). — Brazil, Venezuela.
   pallescens Fabricius, Syst. Rhyng. II : 28. 9 (1803).
   prasina Fairmaire, Rev. Memb. 482. 14 (1846).
   infixa Walker, List. Hom. B. M. Suppl. 149 (1858).

7. *partita* Walker, Ins. Saund. 75 (1858). — **Pl. 3, fig. 26.** — Brazil, Nicaragua, Panama, British Guiana.

8. *trifasciata* Fabricius, Syst. Rhyng. 28. 7 (1803). — Brazil.
   capistrata Burmeister, Rev. Silb. IV : 172. 7 (1836).
   bifasciatus Amyot and Serville, Hémip. 545 (1843).
   disrupta Walker. Ins. Saund. 74 (1858).

29. Genus HEBETICOIDES Fowler

Hebeticoides Fowler, B. C. A. II : 52 (1894).

Characters : Fowler describes this genus as intermediate between *Hebetica* Stal and the old subgenus *Leptosticta* Stal (now a synonym of *Stictopelta* Stal), separating it from both by the venation of the corium. This is a correct distinction but the venation is no different from that of *Darnis* Fabricius and in general facies the insects agree with both *Darnis* and *Ochrolomia*. This leaves as the only structural character available for taxonomic use the relative proportion of the tegmina exposed below the pronotum. We do not consider this a very reliable generic character but since the tribe is large and subdivisions are helpful in classification, we are here recognizing Fowler's arrangement.

In general the insects of this genus resemble those of *Darnis*. The pronotum is smooth, shining, with weak punctuation and no carina. There are no frontal, dorsal nor humeral processes of any kind. The posterior process is long, acuminate, extending backward farther than the tips of the tegmina. The head is subquadrate, twice as broad as long, with the clypeus truncate and not extending below the inferior margins of the genæ. The tegmina are narrowly and evenly exposed for about one-third of their width below the lateral margins of the pronotum.

Type *acutus* Fowler.

Geographical distribution :

1. *acutus* Fowler, B. C. A. II : 53. 1 (1894). — **Pl. 3, fig. 27.** — Guatemala.
2. *confusus* Fowler, B. C. A. II : 54. 2 (1894). — Panama.
3. *denticulus* Fowler, B. C. A. II : 54. 3 (1894). — Mexico, Brazil.

30. Genus OCHROLOMIA Stal

Ochrolomia Stal, Hem. Fabr. II : 32 (1869).

Characters : Erected as a subgenus by Stal particularly on account of the position of the ocelli which are very much nearer to each other than they are to the eyes and because of the short posterior process, and elevated to generic rank by Goding (1894) on the strength of these same characters. In other respects, and particularly in the matter of general superficial appearance, the species of *Ochrolomia* greatly resemble those of *Darnis*.

The insects are medium to large in size; the pronotum is smooth, glistening, often marked with brilliant fascia, and without processes of any kind except the posterior projection which is relatively

short, not reaching the apices of the tegmina. The head is subquadrate, more than twice as broad as high, with the inferior margin very much truncate and the clypeus not extending below the genæ; the ocelli are small and very close together. The tegmina are long, narrow, hyaline or smoky, with five apical and three discoidal cells and are about half covered by the sides of the pronotum. However, even though the tegmina are partly covered, the costal area is well enough exposed to show the three longitudinal veins of the corium with the forked radius which is an important character for the group of genera to which *Ochrolomia* belongs. The colors of these insects are various shades of brown, yellow and black in rather striking combinations.

Type *suturalis* Germar.

Geographical distribution : So far as is now known, this genus is limited to South America, the three described species having been reported as follows :

1. *suturalis* Germar, Rev. Silb. III : 250. 2 (1835).	Brazil.
2. *tricincta* Burmeister, Rev. Silb. IV : 172. 6 (1836).— **Pl. 3, fig. 28.**	Brazil, Peru.
3. *virescens* Butler, Cist. Ent. II : 338. 4 (1878).	Brazil, Ecuador.

31. Genus HEBETICA Stal

Hebetica Stal, Hem. Fabr. II : 32 (1869).

Characters : This was one of the seven subgenera into which Stal divided his genus *Darnis* in 1869. All of these subgenera have since been raised to generic rank on the basis of his characters which seem natural, constant and usable. The genus *Hebetica* was particularly distinguished by Stal by the two forked longitudinal veins of the tegmina, the large anterior and very small interior discoidal cells of the corium, the pubescent head and thorax and by the fact that the tegmina are almost entirely covered by the sides of the pronotum. In general appearance the insects are practically identical with the representatives of the genera *Darnis*, *Hebeticoides*, *Ochrolomia* and *Stictopelta*. The pronotum is rather rough and pubescent and is without dorsal, frontal or lateral horns or protuberances but just behind the eye is a slight lobe. The posterior process is long and sharp, extending as far caudad as the tips of the tegmina. The tegmina are long, narrow, hyaline, with two longitudinal veins, both forked near the center of the corium. Unfortunately, so little of the tegmen projects below the lateral margins of the pronotum that it must be pulled out before this important character can be seen. The head is broad, with the ocelli about equidistant from each other and from the eyes.

Type *limacodes* Burmeister.

Geographical distribution : According to present records, the genus is represented only in South America by the following species :

1. *apicalis* Fairmaire, Rev. Memb. 483. 23 (1846).	Brazil.
2. *arechavelatæ* Goding, Ent. News XXV : 400 (1929).	Uruguay.
3. *convoluta* Fabricius, Spec. Ins. II : 318. 14 (1781). *flavicincta* Germar, Mag. Ent. IV : 12. 2 (1821). *atomaria* Germar, Mag. Ent. IV : 12. 3 (1821). *cuneata* Butler, Cist. Ent. II : 341. 2 (1878).	Brazil.
4. *limacodes* Burmeister, Rev. Silb. IV : 12. 175 (1836).	Brazil, Colombia.

32. Genus STICTOPELTA Stal

Stictopelta Stal, Hem. Fabr. II : 32 (1869).
Leptosticta Stal, Hem. Fabr. II : 32 (1869).
Cryptoptera Butler, Cist. Ent. II : 342 (1878).

Characters : Large, slender, smooth-bodied forms which greatly resemble the species of *Darnis* but may at once be distinguished from that genus by the venation of the tegmina. The head is subquadrate, twice as broad as long, with the inferior margin rounded, the clypeus not projecting below the genæ, and the ocelli much nearer to each other than to the eyes. The pronotum is smooth, shining, very weakly punctate, not pubescent, with no processes except the posterior extension which is long, arcuate, acuminate, and projects backward beyond the tips of the tegmina. A characteristic lobe of the inferior margin of the pronotum is to be noted just behind the eyes. The tegmina are long, narrow, hyaline, with five apical cells and an irregular number (but usually three) of discoidal cells and are about half concealed by the sides of the pronotum. The corium has two prominent longitudinal veins, both forked at about the middle as in the preceding genus. The species *flaviceps* Burmeister, which Stal designated as the type of his subgenus *Leptosticta*, definitely belongs in *Stictopelta* so that the genus *Leptosticta* as recognized by Butler (1878) cannot stand.

Type *adusta* Burmeister.

Geographical distribution : The genus has a very wide range and has been found from Southern South America through Central America and Mexico and in the United States, in which areas a considerable number of species are considered valid as follows :

1. *acutula* Fairmaire, Rev. Memb. 481. 13 (1846). — **Pl. 3, fig. 29.** — Mexico, Guatemala, Panama, Brazil, Uruguay.
   brevis Fairmaire, Rev Memb. 483. 18 (1846).
2. *adusta* Burmeister, Rev. Silb. IV : 170. 2 (1836). — Mexico.
   bipunctata Burmeister, Rev. Silb. IV : 171. 4 (1836).
   polita Butler, Cist. Ent. II : 339 (1878).
3. *arizona* Goding, Can. Ent. XXVII : 276 (1895). — United States.
4. *assimilis* Fowler, B. C. A. II : 57. 7 (1895). — Guatemala.
5. *cærulea* Ball, Proc. Biol. Soc. Wash. XLVI : 28 (1933). — United States.
6. *cruentata* Burmeister, Rev. Silb. IV : 173. 8 (1836). — Brazil.
7. *flaviceps* Burmeister, Rev. Silb. IV : 169. 1 (1836). — Brazil, Uruguay, Argentina.
   limbata Burmeister, Rev. Silb. IV : 175. 10 (1836).
8. *fraterna* Butler, Cist. Ent. II : 340. 9 (1878). — Peru, Mexico.
9. *hinnuleus* Fowler, B. C. A. II : 57. 8 (1895). — Mexico.
10. *incerta* Walker, List Hom. B. M. Suppl. 149 (1858). — Mexico, Yucatan.
11. *indeterminata* Walker, List Hom. B. M. Suppl. 148 (1858). — Brazil, Mexico, Honduras, Argentina, Guatemala, Panama, British Guiana.
    luisæ Berg, Ann. Soc. Cien. Arg. XVI : 289. 163 (1883).
12. *latilinea* Walker, List Hom. B. M. Suppl. 147 (1858). — Brazil, Uruguay.
13. *lineifrons* Fowler, B. C. A. II : 58. 9 (1895). — Mexico.
14. *marmorata* Goding, Ent. News III : 201 (1892). — United States.
15. *nigrifrons* Fowler, B. C. A. II : 58. 11 (1895). — Mexico.

16. *nova* Goding, Ent. News III : 110 (1892).	United States.
17. *præcox* Burmeister, Rev. Silb. IV : 173. 9 (1836).	Mexico.
18. *pulchella* Ball, Proc. Biol. Soc. Wash. XLVI : 28 (1933).	United States.
19. *punctata* Fowler, B. C. A. II : 57. 6 (1895).	Mexico.
20. *squarus* Fairmaire, Rev. Memb. 482. 15 (1846).	Brazil.
21. *strigifrons* Fairmaire, Rev. Memb. 481. 8 (1846).	Mexico.
22. *varians* Fowler, B. C. A. II : 56. 5 (1895).	Mexico.
23. *zonifera* Butler, Cist. Ent. II : 339. 5 (1878).	Mexico.

33. GENUS ALOBIA STAL

Alobia Stal, Hem. Fabr. II : 32 (1869).

Characters : This genus, as its name would suggest, is to be separated from the other genera of the tribe by the absence of the characteristic postocular lobes on the inferior margin of the pronotum behind the head. It was erected for the accommodation of a single species, *alutacea*, which Stal described at the same time at which he designated the genus. We have never seen this species, and, in fact, some authors have considered it a synonym of *Darnis olivacea* Fabricius, which would of course invalidate *Alobia*. However we have not seen a specimen of *olivacea* which did not show the postocular lobes nor any specimens which seemed to approach that condition. Since *alutacea*, as described by Stal, has this very peculiar and distinguishing character, we believe that it should be recognized as representing the subdivision which he indicates. But since no material is available as a basis for a generic description, we can do no more than to quote Stal's own words as follows :

> « Corpore crassiusculo, remote subsericeo capite; obtusissimo, truncato. ante oculos haud producto; ocellis inter se et ab oculis fere æque longe distantibus; thorace alutaceo vel minutissime granulato, haud punctato, tegmina fere tota tegente, margine antico nullibi calloso; corio venis longitudinalibus duabus e basi emissis, ulnari longe ante medium, radiali nonnihil pone medium corii furcatis, area discoidali interiore inter ramos venæ ulnaris jacente elongatissimi; prostethio pone oculos lobo destituto. »

Type *alutacea* Stal.

Geographical distribution : The type species as indicated by Stal is the only known representative of the genus. It is recorded as follows :

1. *alutacea* Stal, Hem. Fabr. II : 32 (1869).	Surinam.

34. GENUS CYPHOTES BURMEISTER

Cyphotes Burmeister, Handb. Ent. II : 143 (1835).

Characters : This is a genus of doubtful position and of questionable standing. From Burmeister's meager description and the position which he gave it in his systematic table, we formerly (1927) considered it as one of the Smiliinæ but Goding has since discovered a second species which definitely places the genus in the position here indicated in the subfamily Darninæ.

According to the original description and to the characters assigned to it by Goding, the genus is to be recognized particularly by the oblique position of the head and the trinodose posterior process.

The tegmina are largely covered by the sides of the pronotum; the humeral angles are extended into short spines; the dorsum is nodulate and shows a strong median carina; the tegmina are hyaline with four apical cells; and the tibiæ are slightly dilated at the extremities.

Type *nodosa* Burmeister.

Geographical distribution : Only two species are known, both from South America.

1. *insolitus* Goding, Trans. Amer. Ent. Soc. LII : 106 (1926). Ecuador.
2. *nodosa* Burmeister, Handb. Ent. II : 143. 1 (1835). Brazil.

35. Genus ASPONA Stal

Aspona Stal, Rio Jan. Hem. II : 29 (1858).

Characters : The species of this genus are rather peculiar in appearance because of their broad forms and the scabrous and deeply indented surface of the pronotum. The head is triangular and somewhat produced. The pronotum is rough and swollen but without nodules or spines. The humeral angles are auriculate and strongly produced. The posterior process is constricted just behind the humeral angles, then much swollen, much wider than the abdomen and strongly convex, then suddenly narrowed to an acute apex which reaches to the tips of the tegmina. The tegmina are hyaline and are more than half covered by the overhanging sides of the swollen pronotum. The longitudinal veins of the costal area are very close together. The corium shows five elongate apical cells and one or two discoidal cells. Stal assigns only one discoidal cell to his type species but this character has been found to be variable. The tegmina are about half as long again as the wings. The legs are simple and all of the tarsi about equal in length.

Type *bullata* Stal.

Geographical distribution : The genus is found in South and Central America and in Mexico with the known species distributed as follows :

1. *aspera* Walker, List Hom. B. M. Suppl. 151 (1858). Argentina.
2. *bullata* Stal, Rio Jan. Hem. II : 29. 1 (1858). Brazil.
3. *cuneata* Fowler, B. C. A. II : 51. 3 (1894). Panama.
4. *intermedia* Fowler, B. C. A. II : 51. 2 (1894). Panama.
5. *turgescens* Fowler, B. C. A. II : 50. 1 (1894). **Pl. 3, fig. 30.** Mexico, Guatemala.

36. Genus HYPHEUS Stal

Hypheus Stal, Bid. Hem. Syst. 557 (1867).

Characters : This genus was erected for the accommodation of Fairmaire's species *ursus* on the characters of the pronotum which include a dorsal hump at the base of the posterior process and flattened sides which almost completely cover the tegmina. The head is straight, vertical, triangular, rounded at the base and with the ocelli much nearer to each other than to the eyes. The pronotum is smooth, punctate, with a strong dorsal swelling at the base of the posterior process, rounded humeral angles, a distinct transverse depression just behind the humeral angles but with no horns or spines. The sides of the pronotum almost completely cover the tegmina, and the posterior process which is heavy, tectiform and sharp, extends just to the tips of the tegmina. The tegmina are hyaline

with five apical and two discoidal cells, the median apical cell truncate. The legs are simple and no part of the body is foliaceous.

Type *ursus* Fairmaire.

Geographical distribution : The genus is represented by only two species, both from South America, as follows :

1. *ursus* Fairmaire, Rev. Memb. 306. 1 (1846). — **Pl. 3, fig. 31.** Colombia.
2. *viridistrigata* Walker, List Hom. B. M. Suppl. 145 (1858). Brazil.

37. Genus ATYPA Laporte

Atypa Laporte, Ann. Soc. Ent. France I : 221 (1832).

Characters : A genus characterized by the high, flattened, somewhat overhanging dorsal crest which suggests superficially the genus *Telamona* of the subfamily Smiliinæ but is of course immediately distinguished from the Smiliinæ by the truncate apical cell of the tegmina. The head is subquadrate, twice as wide as high, with the clypeus short and broad and not extending below the inferior margins of the genæ, the ocelli much farther from each other than from the eyes and three-jointed antennæ inserted in a depression on the posterior margin of the head below the eyes. The pronotum is high, compressed laterally and the anterior crest overhangs the head. The humeral angles are short and blunt and there are no suprahumeral horns or other cephalic processes. The posterior process is elevated, compressed, tectiform, and reaches just about to the tips of the tegmina. The entire pronotum is lightly sculptured and coarsely punctate. The tegmina are entirely free with five apical and three discoidal cells, the median apical cell being broadly truncate. The legs are simple and the tarsi uniform in size.

Type *gibba* Laporte.

Geographical distribution : The genus, so far as is now known, is limited to South America and the species distributed as follows :

1. *bucktoni* (nom. nov.) Goding, S. A. Memb. 219 (1929). Colombia.
   gibba (preoccupied) Buckton, Mon. Memb. 197 (1903).
2. *gibba* Laporte, Ann. Soc. Ent. France I : 221 (1832). Brazil.
3. *gibbosa* Walker, List Hom. B. M. Suppl. 142 (1858). Brazil.

38. Genus PARADARNOIDES Fowler

Paradarnoides Fowler, Trans. Ent. Soc. Lond. 422 (1894).

Characters : Head deflexed, twice as broad as high, ocelli twice as far from each other as from the eyes, clypeus triangular and projecting for more than half its length below the inferior margins of the genæ. Pronotum convex, not elevated ; scutellum not visible ; median carina strongly percurrent; humeral angles heavy, blunt and triangular; no suprahumeral horns ; posterior process long, slender, tectiform, depressed at base, tip acute and not quite reaching the end of the abdomen or the tips of the tegmina. Tegmina entirely free, long, pointed, with five apical and three discoidal cells, the two inner apical cells distinctly curved. Legs simple ; tarsi of equal length. The insects average about eight millimeters in length, are of inconspicuous colors and rather rough sculpturing.

Type *severini* Fowler.

Geographical distribution : Only two species have been described in this genus, both from the West Indies, as follows :

1. *ignipes* Fowler, Trans. Ent. Soc. Lond. 424 (1894). Guadeloupe.
2. *severini* Fowler, Trans. Ent. Soc. Lond. 423 (1894). — **Pl. 3, fig. 32.** Guadeloupe.

39. Genus CYMBOMORPHA Stal

Cymbomorpha Stal, Analect. Hemip. 338 (1866).
Aulactropis Stal, Hem. Fabr. II : 34 (1869).

Characters : Large, conspicuous insects, usually greenish or yellowish in color with the dorsum highly elevated, semifoliaceous and compressed. The head is subquadrate, broader than high, roughly sculptured, usually with longitudinal striæ. The ocelli are large, conspicuous and equidistant from each other and from the eyes. The clypeus is rounded and continues the line of the lateral and inferior margins of the genæ. The pronotum is highly elevated, strongly compressed laterally, with heavy projecting humeral angles but with no suprahumerals or other anterior processes. The posterior process is tectiform, and depressed downward near the end to follow the curve of the tegmina with the tip sharp and not reaching the tips of the tegmina. The scutellum is entirely concealed by the pronotum. The tegmina are broad, hyaline or smoky-hyaline, with five apical and two discoidal cells and a broad limbus, and are entirely free. The legs are simple and the tarsi equally developed.

Type *amazona* Stal.

Geographical distribution : The genus contains a considerable number of species rather widely distributed throughout South and Central America.

1. *amazona* Stal, Analect. Hemip. 388 (1866). — **Pl. 3, fig. 33.** Brazil, Peru.
2. *atromaculata* Goding, Journ. N. Y. Ent. Soc. XXXVII : 11 (1929). Ecuador.
3. *bipunctata* Walker, List Hom. B. M. 566. 6 (1851). Brazil.
4. *convexa* Goding, Amer. Mus. Novit. 11 (1930). Brazil.
5. *dorsata* Fairmaire, Rev. Memb. 293. 6 (1846). Brazil.
   æqualis Walker, List Hom. B. M. Suppl. 133 (1858).
   persistans Walker, List Hom. B. M. Suppl. 338 (1858).
6. *nitidipennis* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1 (1922). Peru, Brazil.
7. *olivacea* Fabricius, Syst. Rhyng. 10. 20 (1803). Central America.
   obtusa Fabricius, Syst. Rhyng. 11. 23 (1803).
8. *prasina* Germar, Rev. Silb. III : 234. 3 (1835). Brazil, Panama, Guatemala.
   nigrofasciata Fairmaire, Rev. Memb. 292. 5 (1846).
   lepida Walker, List Hom. B. M. Suppl. 133 (1858).
9. *vaginata* Germar, Rev. Silb. II : 23. 1 (1835). Brazil, British Guiana.
   campestris Fairmaire, Rev. Memb. 292. 3 (1846).
   similis Walker, List Hom. B. M. 556. 7 (1851).
   spinigera Walker, List Hom. B. M. 557. 8 (1851).
   rubropedalis Buckton, Mon. Memb. 139 (1903).

40. Genus PARAGARGARA Goding

Paragargara Goding, Journ. N. Y. Ent. Soc. XXXIV : 246 (1926).

Characters : We have never seen the species *tholoidea* on which *Paragargara* was founded and which is the single representative of the genus, but from the name which Goding gave the genus (which

was misprinted in the original description but which was afterward corrected) and from the characters given in his description, we assume that the insect suggests in general facies the Old World genus *Gargara* which contains a large number of small inconspicuous forms of about the size given for *tholoidea*. Goding's original description which is quite complete but which is not accompanied by a figure, is as follows :

> « Densely and evenly punctate and densely golden pubescent. Head triangular, longer than broad, rounded forward from base and curved downward and backward from middle to apex; base sinuate; ocelli distant from base, on a line with superior margin of and approaching eyes which are large and prominent. Pronotum tumid, forming a dome-like elevation, unarmed above humerals and in front, with a strong elevated percurrent carina but not foliaceous; humerals prominent; seen from the side the outline is semicircular from base in front to posterior process; base of posterior process broad, covering scutellum, seen from above gradually acuminate to apex which extends beyond tip of abdomen and interior angle of tegmina; seen from the side it is roundly elevated from base to apex and tectiform and moderately high. gradually elevated in a curve above apex of abdomen. Tegmina one-half as broad as long, basal half opaque, apical half sordid hyaline vitreous, apices obliquely narrowed to obtuse exterior angle; three longitudinal veins emitted from base of corium, radial forked well toward apex to receive exterior discoidal cell, ulnar veins simple, space between radial vein and costa broad coriaceous and densely punctate; two discoidal cells, nearly equal, interior cell sessile, its base a transverse venule between ulnar veins behind middle; five apical cells, third sessile with base truncate; basal half clavus coriaceous, punctate, not gradually acuminate, venation not easily seen. Wings with four apical cells. Abdomen robust; legs slender, tarsi all short. »

The very small size and the upturned tip of the posterior process seem to be the most distinctive characters by which the genus can be most readily separated from the more nearly related genera of the tribe.

Type *tholoidea* Goding.

Geographical distribution : Known only from the following single species :

1. *tholoidea* Goding, Journ. N. Y. Ent. Soc. XXXIV : 246 (1926). Ecuador.

41. Genus EUMELA Stal

Eumela Stal, Bid. Hem. Syst. 559 (1867).

Characters : Rather large brownish or grayish insects with smooth rounded pronotum and heavy straight posterior process. The head is subquadrate with base sinuate and the ocelli equidistant from each other and from the eyes. The pronotum is convex, rounded in front, with a strong median carina and a well defined circular impression on each side. The dorsum is punctate and pubescent. The posterior process is heavy, straight, rounded above and sharp at its extremity, extending almost to the tips of the tegmina. The scutellum is completely covered by the sides of the pronotum. The tegmina are entirely free, usually smoky or fuscous hyaline in color with the venation more or less obscure; there are five apical and two discoidal cells and a wide limbus. The legs are simple and the tarsi uniform in length.

Type *semiacuta* Stal.

Geographical distribution : The three described species of the genus have been reported only from Brazil.

1. *fornicata* Germar, Mag. Ent. IV : 22. 21 (1821). Brazil.
lacca Burmeister, Handb. Ent. II : 1.138. 3 (1839).
2. *sellata* Germar, Rev. Silb. III : 234. 4 (1835). Brazil.
brunneo-fasciata Fairmaire, Rev. Memb. 292. 2 (1846).
3. *semiacuta* Stal, Rio Jan. Hem. II : 27. 3 (1862). Brazil.

42. Genus IRIA Stal

Iria Stal, Bid. Hem. Syst. 559 (1867).

Characters : Small, slender, inconspicuous insects of dull colors, with low rounded anterior pronotum, short, thin posterior process and entirely exposed tegmina. The head is swollen, projects forward and is subquadrate, about twice as broad as long; the clypeus is bulbous, projecting forward farther than the frons and extending for two-thirds its length below the inferior margins of the genæ; the ocelli are very large, conspicuous, prominent, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes. The pronotum is low, convex, tricarinate, rounded, with weak obtuse humeral angles and no suprahumerals or other anterior projections; the median carina is strongly percurrent; the scutellum is entirely hidden by the sides of the pronotum; the posterior process is short, slender and spine-like, almost flat but with a strong central ridge and a carina on each side, and does not extend as far backward as the anterior angles of the tegmina, being only about half as long as the abdomen. The tegmina are entirely free and almost entirely hyaline, the base narrowly coriaceous and opaque; there are five apical cells and one discoidal cell and the apical veins are slightly curved; there is no transverse vein across the middle of the corium and the apical limbus is very narrow. The legs are simple an l the tarsi uniform in size.

Type *carinata* Walker.

Geographical distribution : Seven species have been described in this genus, one from the West Indies and all of the others from Brazil.

1. *carinata* Walker, List Hom. B. M. 590. 3 (1851). Brazil.
2. *fasciifera* Stal, Rio Jan. Hem. II : 27. 6 (1862). Brazil.
3. *inornata* Stal, Rio Jan. Hem. II : 26. 3 (1862). Brazil.
4. *lethierryi* (nom. nov.) Funkhouser, Cat. Memb. 147 (1927). Guadeloupe.
carinata (preoccupied) Lethierry, Ann. Soc. Ent. Belg. XXV : 15 (1872).
— Pl. 3, fig. 34.
5. *maculinervis* Stal, Rio Jan. Hem. II : 27. 4 (1862). Brazil.
6. *pilosella* Stal, Rio Jan. Hem. II : 27. 5 (1862). Brazil.
7. *stictica* Stal, Rio Jan. Hem. II : 26. 2 (1862). Brazil.

43. Genus RHEXIA Stal

Rhexia Stal, Bid. Hem. Syst. 560 (1867).
Scaphula (preoccupied) Fairmaire, Rev. Memb. 494 (1846).
Tristan Kirkaldy, Ent. XXXIV : 6 (1903).

Characters : Large robust insects with smooth shining appearance. Head triangular, smooth, shining, impunctate; clypeus extending for one-half its length below inferior margins of genæ; ocelli

small, slightly elevated, equidistant from each other and from the eyes; eyes slanting, twice as wide as high. Pronotum smooth, polished, lightly punctate, not pubescent; humeral angles rounded, very slightly produced; no suprahumeral horns or other anterior processes; dorsum convex, rounded, highest in middle with weak median carina; sides weakly impressed; scutellum entirely concealed by pronotum; posterior process wide, high, rounded, suddenly narrowed at tip which just reaches internal angles of tegmina. Tegmina entirely free, the inner margin impinging on pronotum, hyaline or translucent; five apical cells and one discoidal cell, the apical veins distinctly curved and the median apical cell irregularly truncate; apical limbus very broad. Legs and tarsi simple.

Type *flavescens* Fairmaire.

Geographical distribution : Represented in South America and in the Canal Zone as follows:

1. *bifasciata* Butler, Cist. Ent. II : 356. 6 (1878).	Brazil.
2. *biplaga* Walker, Ins. Saund. 60 (1858).	Colombia.
3. *bistriga* Walker, Ins. Saund. 74 (1858).	Brazil.
4. *centromaculata* Fairmaire, Rev. Memb. 495. 3 (1846).	Brazil.
5. *cumulata* Walker, List Hom. B. M. Suppl. 145 (1858).	Brazil.
6 *flavicans* Fairmaire, Rev. Memb. 494. 2 (1846).	Brazil.
7. *kartabensis* Haviland. Zoologica VI : 3. 244 (1925).	British Guiana.
8. *maculata* Funkhouser, Journ N. Y. Ent. Soc. XXX : 1. 15 (1922).	Brazil.
9. *melanocephala* Fowler, B. C. A. II : 83. 1 (1895).	Panama.
10. *pallescens* Fabricius, Syst. Rhyng. II : 28. 9 (1803). — **Pl. 3, fig. 35.**	Argentina.
11. *semiatra* Fairmaire, Rev. Memb. 494. 1 (1846).	Brazil.
12. *varicosa* Butler, Cist. Ent. II : 356 (1878).	Brazil.

44. Genus SMILIORHACHIS Fairmaire

Smiliorhachis Fairmaire, Rev. Memb. 291 (1846).

Characters : Small, slender-bodied, inconspicuously colored insects with a straight posterior process and the apical cells of the tegmina strongly curved. Head triangular, roughly sculptured, with the base weakly arcuate; clypeus projecting for half its length below the inferior margins of the genæ and continuing the line made by these margins; ocelli small, inconspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes. Pronotum slightly elevated, somewhat compressed laterally, with a strong, sharp median carina; humeral angles rounded and weakly produced; no suprahumerals or other anterior processes; scutellum entirely hidden by sides of pronotum; posterior process narrow, tectiform, sharply ridged, with the acute tip extending to a point just beyond the internal angles of the tegmina. Tegmina entirely free, broad, usually hyaline with some maculations, veins strong, five apical cells and one discoidal cell, the veins of the apical cells being very strongly curved; apical limbus broad. Legs simple; all tarsi of equal length.

Type *variegata* Fairmaire.

Geographical distribution : At present this genus is limited to South America with the species recorded as follows :

1. *concinna* Stal, Rio Jan. Hem. II : 27. 7 (1862).	Brazil.
2. *octilinea* Stal, Bid. Memb. Kan. 260. 2 (1869). — **Pl. 3, fig. 36.**	Argentina.

3. *proxima* Berg, Ann. Soc. Cien. Arg. XVI : 285 (1883).	Argentina, Brazil, Uruguay.
4. *variegata* Fairmaire, Rev. Memb. 291. 4 (1846).	Argentina, Brazil.

45. GENUS DARNOIDES FAIRMAIRE

Darnoides Fairmaire, Rev. Memb. 495 (1846).

Characters : Small, inconspicuous insects of yellow or greenish coloration with a slender acute posterior process and hyaline tegmina with straight apical veins Head subquadrate, broader than high; base nearly straight; clypeus very slender, extending for two-thirds its length below the inferior margins of the genæ; ocelli small, inconspicuous, somewhat elevated, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes. Pronotum rough, convex, rounded; metopidium straight; humeral angles weak, rounded; no suprahumerals or other anterior processes; posterior process slender, straight, often slightly depressed at base, tip acute and reaching just to internal angles of tegmina; scutellum entirely covered by pronotum. Tegmina entirely free, hyaline, veins weak, five apical cells and one discoidal cell, the apical veins straight; apical limbus very broad. Legs simple; tarsi uniform in size.

Type *limbatus* Fairmaire.

Geographical distribution : This genus has a rather wide distribution over Central and South America with the following recorded species :

1. *affinis* Fowler, B. C. A. II : 82. 1 (1894).	Mexico, Guatemala, Panama, Bolivia.
2. *brunneus* Germar, Rev. Silb. III : 308 (1836). — **Pl. 3, fig. 37.** *nigroapicata* Stal, Rio Jan. Hem. II : 32. 1 (1862)	Brazil, British Guiana.
3. *flavescens* Baker, Can. Ent. XXXIX : 117 (1907).	Honduras, Brazil, Mexico.
4. *impressus* Stal, Bid. Memb. Kan. 262. 3 (1869).	Colombia.
5. *limbatus* Fairmaire, Rev. Memb. 495. 1 (1846).	Colombia, Venezuela.
6. *punctellatus* Stal, Bid. Memb. Kan. 263. 4 (1869).	Colombia.
7. *semivitta* Walker, List Hom. B. M. 586. 7 (1851).	Colombia, Ecuador.

46. GENUS BRACHYTALIS METCALF AND BRUNER

Brachytalis Metcalf and Bruner, Memb. Cuba 205 (1925).

Characters : Very small, shining insects with broad bodies and semiopaque tegmina, resembling in general facies the forms of the genus *Acutalis* of the subfamily Smiliinæ but of course immediately distinguished from that group by the truncate base of the median apical cell of the tegmina and the concealed scutellum. Head subquadrate, twice as broad as high, with the eyes extending as far laterad as the humeral angles; base weakly sinuate; eyes large and prominent; ocelli about equidistant from each other and from the eyes and situated near the base of the head well above a line drawn through centers of eyes; clypeus broad, somewhat deflexed, extending only slightly below the inferior margins of the genæ. Pronotum broad, depressed, smooth and shining, very lightly punctate and not pubescent; metopidium sloping, broader than high; humeral angles broad, triangular and blunt; no suprahumerals or other anterior processes; posterior process straight, rounded above, short, just reaching the apical end of the clavus; median carina faintly percurrent; scutellum entirely hidden by the sides of the pronotum.

Tegmina semiopaque with the venation somewhat obscure; five apical cells and one discoidal cell, the median apical cell truncate at base; no apical limbus. Legs simple; posterior tarsi longest.

Type *fuscus* Metcalf and Bruner.

Geographical distribution : Known only from the two Cuban species here recorded.

1. *fuscoalis* Metcalf and Bruner, Memb. Cuba 205 (1925). Cuba.
2. *fuscus* Metcalf and Bruner, Memb. Cuba 204 (1925).— **Pl. 3, fig. 38**. Cuba.

47. Genus PROCYRTA Stal

Procyrta Stal, Hem. Fabr. II : 32 (1869).
Dysyncritus Fowler, B. C. A. II : 80 (1895).

Characters : Small, roughly sculptured forms of dull colors with the pronotum somewhat elevated and the tegmina free and characterized by a transverse vein just behind the middle. Head triangular, roughly sculptured; base strongly arcuate; eyes large, prominent; ocelli small, inconspicuous, twice as far from each other as from the eyes and situated about on a line drawn through centers of eyes; clypeus extending for half its length below the inferior margins of the genæ and continuing the line of the face made by these margins. Pronotum somewhat elevated, rounded above in front and somewhat compressed behind, roughly sculptured, usually maculate with brown or black; dorsum somewhat sinuate; metopidium straight, higher than broad; median carina strongly percurrent; humeral angles weak, rounded, not strongly produced; no suprahumerals or other anterior processes; posterior process heavy, tectiform, somewhat compressed laterally, tip suddenly acuminate and extending to a point beyond the interior angles but not reaching the tips of the tegmina; scutellum entirely concealed. Tegmina entirely free, broad, fuscus hyaline, usually with brown or black markings; base broadly coriaceous and punctate; apical limbus broad; five apical cells with strongly curved venation; one discoidal cell; the apical area set off by a more or less well defined line of transverse veins. Legs simple; all of the tarsi about equal in length.

Type *pectoralis* Fabricius.

Geographical distribution : Apparently well distributed over South America, Central America and Mexico as represented by the following species :

1. *affinis* Guerin, Ic. Règ. An. Ins. 364 (1838). Mexico, Yucatan.
   transversalis Walker, List Hom. B. M. Suppl. 574. 3 (1858).
2. *discrepans* Goding, Amer. Mus. Novit. 14 (1930). Brazil.
3. *intectus* Fowler, B. C. A. II : 81. 1 (1895). — **Pl. 3, fig. 39**. Mexico, Guatemala, Peru, [Honduras.
4. *lineatus* Goding, Amer. Mus. Novit. 12 (1930). Brazil.
5. *nubilis* Goding, Amer. Mus. Novit. 13 (1930). Brazil.
6. *ornamentata* Stoll, Cigal. 71 (1780). Surinam.
7. *pectoralis* Fabricius, Syst. Rhyng. 21. 25 (1803). Central America.

GENERA OF THE TRIBE ACONOPHORINI GODING

I. *Humeral angles not produced into spines*
  A *Pronotal horns originating in front of suprahumerals*
    1. *Pronotal horn robust, porrect, straight, sometimes compressed laterally, extending forward and upward* . . . . ACONOPHORA Fairmaire.

2. *Pronotal horn curved*
 a. *Pronotal horn flattened dorsoventrally, curved forward and downward* . . . . KRONIDES Kirkaldy.
 aa. *Pronotal horn very slender extending forward and curving strongly upward*. . . . . ORЕКТHOPHORA Funkhouser.
 B. *Pronotal horn arising from behind suprahumerals* . . . . . HEMIPTYCHA Germar.
II. *Humeral angles produced into spines*
 A. *Pronotum extended into a horn over the head* . . . . NESSORHINUS Amyot and Serville.
 B. *Pronotum without frontal extension* . . . . SPINODARNOIDES Funkhouser.

48. GENUS ACONOPHORA FAIRMAIRE

Aconophora Fairmaire, Rev. Memb. 294 (1846).

Characters : Robust, subcylindrical insects, mostly of large size, with long, heavy, porrect frontal horns, long sharp posterior processes, weak humeral angles and entirely free tegmina. Head subquadrate, broader than high; base arcuate; eyes large and prominent; ocelli equidistant from each other and from the eyes; inferior margins of genæ usually extended downward into lobes; clypeus broad and truncate and extending for at least half its length below the inferior margins of the genæ. Pronotum subcylindrical or conical, usually smooth; humeral angles weak and rounded and but slightly produced outward; anterior pronotal horn straight, long, heavy, porrect, usually more or less flattened laterally and projecting directly forward and upward; median carina only faintly percurrent; posterior process strong, generally rounded above, sharp, length variable but usually extending to a point about half-way between the internal angles and the tips of the tegmina; scutellum entirely concealed. Tegmina long, narrow, entirely free, generally smoky-hyaline with strong, conspicuous veins; five long, narrow apical cells, the median one truncate at its base; two discoidal cells; apical limbus broad and wrinkled. Legs simple; tarsi about equal in length.

Type *laminata* Fairmaire.

Geographical distribution : This is one of the largest and most widely distributed of all of the New World genera of the Membracidæ and is represented by a large number of localities both by the various genera and by single species. The species are in some confusion but it is evident from material in collections that the same species may be found in many widely separated regions. Consequently in the following list of species, the number of countries recorded for a single species may seem surprisingly large.

1. *ænosparsa* Butler, Cist. Ent. II : 348. 9 (1878). — Mexico.
2. *brasiliensis* Stal, Hem. Fabr. II : 34 (1869). — Brazil, Ecuador.
3. *caliginosa* Walker, List Hom. B. M. Suppl. 135 (1858). — Guatemala, British Guiana, Mexico, Nicaragua, Panama.
4. *compressa* Walker, List Hom. B. M. 541 (1851). — Mexico, British Guiana.
5. *concolor* Walker, List Hom. B. M. 540. 17 (1851). — Mexico, Peru.
6. *conifera* Butler, Cist. Ent. II : 350. 23 (1878). — Mexico.
7. *cultellata* Walker, Ins. Saund. 70 (1858). — Brazil.
8. *disparicornis* Fowler, B. C. A. II : 69. 18 (1895). — Panama, Honduras.

9. *ensata* Fowler, B. C. A. II : 68. 15 (1895. — Mexico, Guatemala, Nicaragua, Panama.

10. *femoralis* Stal, Hem. Fabr. II : 35.13 (1869). — Mexico, Bolivia.

11. *ferruginea* Fowler, B. C. A. II : 69. 17 (1895). — Mexico, Panama, Brazil, Peru, Canal Zone.

12. *flavipes* Germar, Rev. Silb. III : 238. 16 (1835). — Mexico.

13. *fusiformis* Fowler, B. C. A. II : 69. 19 (1895). — Panama, Bolivia, Brazil.

14. *gigantea* Butler, Cist. Ent. II : 352 (1878). — Brazil.

15. *gladiata* Stal, Hem. Fabr. II : 35. 14 (1869). — Mexico.

16. *grisescens* Germar, Rev. Silb. III : 238. 17 (1835). — Brazil, Peru.
 pugnax Germar, Rev. Silb. III : 239. 19 (1835).
 interna Walker, List Hom. B. M. 541. 19 (1851).
 gilvipes Stal, Rio Jan. Hem. II : 28. 2 (1858).

17. *imbellis* Fairmaire, Rev. Memb. 295. 3 (1846). — Brazil, Bolivia.
 surgens Walker, Ins. Saund. 69 (1858).

18. *laminata* Fairmaire, Rev. Memb. 294. 2 (1846). — **Pl. 3, fig. 40.** — Mexico, Peru, Argentina, Colombia, Brazil.

19. *laticornis* Walker, List Hom. B. M. Suppl. 134 (1858). — Mexico, Guatemala, Costa Rica, Argentina.

20. *marginata* Walker, List Hom. B. M. 540. 16 (1851). — Mexico, Guatemala, Costa Rica, Panama, Peru, Ecuador, Bolivia, Brazil.
 stabilis Walker, List Hom. B. M. Suppl. 135 (1858)
 gracilicornis Stal, Hem. Fabr. II : 35. 11 (1869).
 nigra Stal, Hem Fabr. II : 35. 5 (1869).

21. *mexicana* Stal, Hem. Mex. 70. 427 (1864). — Mexico, Yucutan, Guatemala, Panama, Colombia.

22. *minuta* Fowler, B. C. A. II : 72. 27 (1895). — Mexico.

23. *nigricornis* Fowler, B. C. A. II : 64. 6 (1895). — Mexico, Guatemala.

24. *nitida* Fowler, B. C. A. II : 66. 11 (1895). — Panama, Canal Zone, Brazil.

25. *obfuscata* Buckton, Trans. Linn. Soc. Lond. IX : 331 (1905). — Mexico.

26. *obtusa* Walker, List Hom. B. M. 542. 20 (1851). — Brazil.

27. *obtusiuscula* Fowler, B C. A. II : 71. 26 (1895). — Mexico.

28. *pallescens* Stal, Hem. Fabr. II : 35. 12 (1869). — Mexico, Guatemala, Peru, Bolivia.

29. *pinguis* Fowler, B. C. A. II : 64. 7 (1895). — Panama, Colombia.

30. *projecta* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 160 (1927). — Bolivia, Ecuador, Mexico.

31. *pruinitia* Butler, Cist. Ent. II : 350. 21 (1878). — Mexico.
 punitia (sic) Buckton, Mon. Memb. 134 (1903).

32. *pubescens* Walker, Ins. Saund. 70 (1858). — Guatemala, Brazil.
 spathata Butler, Cist. Ent. II : 347. 5 (1878).

33. *pugionata* Germar, Mag. Ent. IV : 20. 17 (1818). — Brazil, Ecuador, Argentina, Honduras, Colombia, Mexico, Peru.
 hadina Butler, Cist. Ent. II : 349. 20 (1878).

34 *sinanjensis* Fowler, B. C. A. II : 70. 20 (1895). — Guatemala, Peru, Ecuador, Colombia, Honduras.

35. *subinermis* Stal, Rio Jan. Hem. II : 28 (1858). — Brazil, Mexico.

36. *talpula* Stoll, Cigal. 61 (1780). — Surinam.

37. *teligera* Germar, Mag. Ent. IV : 21. 18 (1821).	Brazil.
38. *temaxia* Fowler, B. C. A. II : 70. 21 (1895).	Mexico, Yucutan, Guatemala.
39. *tenuicornis* Walker, Ins. Saund. 70 (1858).	Brazil.
40. *variipennis* Fowler, B. C. A. II : 67. 12 (1895).	Mexico, Yucatan.
41. *viridula* Fowler, B. C. A. II : 71. 24 (1895).	Mexico.
42. *w. album* Buckton, Mon. Memb. 132 (1903).	Ecuador.
43. *xiphias* Fabricius, Syst. Rhyng. 12. 29 (1803).	Brazil.

49. GENUS KRONIDES KIRKALDY

Kronides Kirkaldy, Ent. XXXVII : 279 (1904).
Argante (preoccupied) Stal, Bid. Hem. Syst. 558 (1867).

Characters : This genus may be recognized at once by the strong curved pronotal horn which is broadly flattened dorso-ventrally and bends downward in front of the head. Head deflexed, subquadrate, twice as broad as high, almost entirely concealed from a dorsal view by the over-hanging anterior horn, base higher at sides than in the center because of the downward curve of the cephalic margin of the metopidium; eyes large, prominent, extending farther laterad than the sides of the pronotum; ocelli prominent, somewhat elevated, farther from each other than from the eyes; clypeus extending for half its length below inferior margins of genæ. Pronotum low, almost flat above, punctate and shining; anterior pronotal horn strong, broadly compressed dorso-ventrally, extending forward and bending strongly downward over and in front of the head, tip truncate; humeral angles very weak and rounded; median carina percurrent; posterior process broad, flat, gradually becoming acute to the tip which reaches just beyond the internal angles of the tegmina; scutellum entirely concealed. Tegmina long, narrow, opaque, veins more or less obscure; five apical cells, the median one truncate at base; one discoidal cell; apical limbus broad. Legs simple; posterior tarsi the longest.

Type *incumbens* Germar.

Geographical distribution : The genus is known only from South America and is represented by only five species but the individuals must be very numerous and easily collected for they are to be found very commonly in collections.

1. *brevicornis* da Fonseca, Arquiv Instit. Biol. VIII : 8. 236 (1937).	Brazil.
2. *cochleata* Schmidt, Stet. Ent. Zeit. LXXII : 273. 2 (1911).	Argentina, Uruguay, Brazil.
3. *incumbens* Germar, Rev. Silb. III : 239. 20 (1835). — **Pl. 3, fig. 41.**	Brazil, Argentina.
4. *ogloblina* da Fonseca, Arquiv. Instit. Biol. VII : 12. 161 (1936).	Argentina.
5. *tremolaris* Goding, Ent. News XXV : 402 (1914).	Uruguay, Paraguay.

50. GENUS OREKTHOPHORA FUNKHOUSER

Orekthophora Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 412 (1930).

Characters This genus may be distinguished at a glance by the long, slender, up-turned anterior pronotal horn which is unlike that of any other form not only in the subfamily but in the family. The insects are small and slender-bodied with the following technical characters : Head subquadrangular, twice as broad as high; base emarginate in center to accommodate a median downward curve of the

cephalic margin of the metopidium; eyes large and glassy; ocelli minute, located in the upper outer angles of the head, very close to the base and to the eyes; inferior margins of the genæ projecting downward in lobes on each side; clypeus very long and narrow and projecting for two-thirds its length below the inferior margins of the genæ; the extended clypeus and the lobes of the genæ giving the head a trilobed appearance. Pronotum rounded above the shoulders and extended forward in a long, slender anterior process which is strongly curved upward and ends in a slightly dilated and bifurcate tip; humeral angles very weak, obtuse and triangular; median carina percurrent; posterior process long, slender, tricarinate, decurved, tip acuminate and extending just to the tips of the tegmina; scutellum entirely concealed. Tegmina long, narrow, entirely free, opaque but with veins raised and prominent; five apical and three discoidal cells; median apical cell truncate at base; apical limbus well developed. Legs simple and very slender; hind tarsi the longest.

Geographical distribution : Known only from the following single species from the West Indies :

1. *cornuta* Funkhouser, Journ. N.Y. Ent. Soc. XXXVIII : 412 (1930). — Pl. 4, fig. 42. San Domingo.

51. Genus HEMIPTYCHA Germar

Hemiptycha Germar, Rev. Silb. I : 177 (1833).
Hypselotropis Stal, Hem. Fabr. II : 26 (1869).
Gelastophara Kirkaldy, Ent. XXXVII : 279 (1904).

Characters : This genus has had a rather strange and troubled history and is here included only because the type species, which is now the only species remaining in the genus, still remains as the lone representative, with characters which seem to distinguish it from related forms. The meager characters, as described for the genus by Germar, have been subject to many interpretations, and doubtless to many misinterpretations, so that species have been assigned to the genus and afterwards removed to other genera in a fashion which is most confusing. At one time or another, sixty-four different species have been placed in *Hemiptycha*; now only one remains. Moreover, at least two synonyms are known for the genus; five or six new genera have been split off from these groups; a number of the old species have been positively shown to belong to other subfamilies; and the synonymy of many other species, formerly placed in *Hemiptycha*, is questionable.

The chief character which may validate the genus is the position of the pronotal horn far back on the pronotum and arising from behind the humeral angles. The only other diagnostic characters seem to be the very weak humeral angles which are not produced into spines, the straight anterior process and the truncate median apical cell of the corium, and these characters have therefore been used to identify the genus in the preceding synoptic key.

Type *obtecta* Fabricius.

Geographical distribution : The single species now remaining in the genus was described from some unidentified locality in South America. We have never seen this insect and we know of no one who has recognized it since Stal used it as the type of *Hypselotropis* (which we believe to be a synonym of *Hemiptycha*) in 1869.

1. *obtecta* Fabricius, Syst. Rhyng. 13. 31 (1803). South America.

52. Genus NESSORHINUS Amyot and Serville

Nessorhinus Amyot and Serville, Hémip. 542 (1843).

Characters : Medium sized insects of quite remarkable appearance due to the flattened anterior horn which projects directly forward over the head and the greatly produced humeral angles which project outward as large spines. Head very small, poorly developed, three times as wide as high; base almost flat; eyes large and prominent; ocelli large, conspicuous, located in the upper, outer angles of the head, very close to the base and to the eyes, as in the genus *Orekthophora;* inferior margin of the genæ sinuate; clypeus extending for more than half its length below the inferior margins of the genæ. Pronotum low and almost flat except for a median dorsal crest which is always present but is variable in height; anterior pronotal process long, heavy, strong, tricarinate, somewhat flattened dorso-ventrally and extending almost directly forward; metopidium sloping; median carina percurrent; humeral angles developed into long, spine-like horns which extend outward and upward; posterior process long, slender, tectiform, tricarinate, acuminate, extending just about to the tips of the tegmina; scutellum entirely concealed. Tegmina entirely free, long, narrow, vitreous, semiopaque; veins heavy and prominent, those of the apical area slightly curved; five apical cells with the median one truncate at base; number of discoidal cells variable but usually three; apical limbus very narrow. Legs simple; all tarsi about equal in length.

Type *vulpes* Amyot and Serville.

Geographical distribution : This genus is known only from the West Indies and is represented by the following species :

1. *gibberulus* Stal, Bid. Memb. Kan. 294. 1 (1869).	Porto Rico.
2. *gracilis* Metcalf and Bruner, Memb. Cuba 208 (1925).	Cuba.
3. *graciloides* Dozier, Amer. Mus. Novit. 3 (1931).	Porto Rico.
4. *vulpes* Amyot and Serville, Hémip. 242 (1843). — **Pl. 4, fig. 43.**	Haiti, San Domingo, St. Vincents Island.

53. Genus SPINODARNOIDES Funkhouser

Spinodarnoides Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 412 (1930).

Characters : A slender bodied insect characterized by the long, spine-like humeral angles, a spinose median dorsal process but having no anterior horn. The head is rather curious since it projects in a horizontal ridge with the base and inferior surfaces sloping backward from this ridge. The head is nearly three times as broad as high; base sinuate; eyes large; ocelli large, prominent, three times as far from each other as from the eyes and situated just above the protruding ridge of the head; clypeus broad, projecting for two-thirds its length below the sinuate margins of the genæ. Pronotum rounded but not high; metopidium sloping; median carina strongly percurrent; humeral angles produced outward into long, sharp spines; no anterior horn; median dorsal spine short and sharp; posterior process long, slender, sharp, tricarinate, its tip not quite reaching the tips of the tegmina; scutellum entirely concealed. Tegmina entirely free, long, narrow, hyaline; five apical and three discoidal cells; apical limbus narrow.

Type *typus* Funkhouser.

Geographical distribution : Known only from the type species which was found in Porto Rico.

1. *typus* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 412 (1930). Porto Rico. — **Pl. 4, fig. 44.**

GENERA OF THE TRIBE HEMIKYPTHINI TRIBUS NOV.

I. *Tegmina partly covered by sides of pronotum*
- A. *Head subquadrate, wider than long* . . . . PROTERPIA Stal.
- B. *Head triangular* . . . . EULATHE Stal.

II. *Tegmina entirely exposed*
- A. *Corium with one triangular discoidal cell* . . . . NASSUNIA Stal.
- B. *Corium with two elongate discoidal cells*
  - 1. *Pronotum convex* . . . . TOMOGONIA Stal.
  - 2. *Pronotum elevated and bulbous anteriorly, generally with suprahumeral horns*
    - a. *Ocelli equidistant from each other and from the eyes*
      - b. *Posterior process extending beyond tegmina; body slender* . . . BUBALOPA Stal.
      - bb. *Posterior process not as long as tegmina; body robust*
        - c. *Suprahumerals heavy, blunt; posterior process blunt* . . . . HYPHINOE Stal.
        - cc. *Suprahumerals sharp; posterior process acute*
          - d. *Cells of tegmina narrow, oblong* . . . . ALCMEONE Stal.
          - dd. *Cells of tegmina irregular, not narrow and oblong.* . . . ICTARANTHE Fowler.
    - aa. *Ocelli much nearer to each other than to the eyes*
      - b. *Suprahumerals strongly curved upward* . . . . HEMIKYPTHA Metcalf.
      - bb. *Suprahumerals extending laterad, very little upward.* . . . . . SUNDARION Kirkaldy.

54. GENUS PROTERPIA STAL

Proterpia Stal, Bid. Hem. Syst. 557 (1867).

Characters : Large robust insects, distinguished by the porrect suprahumeral horns with blunt, truncate or rounded tips and by the fact that the tegmina are about half concealed by the overhanging sides of the pronotum. Head subquadrate, twice as wide as high ; base sinuate ; eyes prominent, glassy; ocelli small, about equidistant from each other and from the eyes; inferior margins of genæ rounded; clypeus broad and extending for about half its length below inferior margins of genæ. Pronotum tectiform, highest in middle; metopidium straight; median carina faintly percurrent; humeral angles blunt, triangular; suprahumeral horns stout, robust, projecting forward and slightly upward, nearly parallel with each other, slightly compressed laterally with usually a lateral carina, tips rounded; posterior process heavy, straight, tectiform, sharp, reaching just beyond the tips of tegmina; scutellum entirely hidden. Tegmina subopaque, pubescent, about half covered by the sides of the pronotum ; five apical and two discoidal cells; median apical cell truncate at base; apical limbus narrow. Legs simple; hind tarsi a little longer than the others.

Type *rotundicornis* Fairmaire.

Geographical distribution : Only two species described, both from South America.

1. *rotundicornis* Fairmaire, Rev. Memb. 314. 4 (1846). — **Pl. 4, fig. 45.** Brazil, Venezuela, Colombia.
2. *truncaticornis* Goding, Amer. Mus. Novit. 15 (1930). Brazil.

55. GENUS EUALTHE STAL

Eualthe Stal, Bid. Hem. Syst. 557 (1867).

Characters : Large elongate insects with nearly horizontal suprahumeral horns, a long, slender, slightly upturned posterior process and the tegmina partly covered by the sides of the pronotum. Head triangular; base strongly arcuate; eyes subtriangular; ocelli large, nearer to each other than to the eyes; inferior margins of genæ straight and sloping; clypeus diamond-shaped, projecting for half its length below the inferior margins of the genæ. Pronotum low, tectiform, dorsum nearly straight; metopidium straight; humeral angles blunt, triangular; suprahumeral horns heavy, blunt, extending outward and slightly upward; posterior process long, slender, slightly upturned, and extending beyond the tips of the tegmina; scutellum entirely covered by the sides of the pronotum. Tegmina long, narrow, fuscous-hyaline, pubescent, about one-third covered by the sides of the pronotum; five apical and two discoidal cells; median apical cell truncate at base; apical limbus very narrow. Legs simple; hind tarsi longer than the other two pairs.

Type *lævigata* Fairmaire.

Geographical distribution : The only two species known were described from Brazil and have never been reported from any other country.

1. *lævigata* Fairmaire, Rev. Memb. 318. 18 (1846). Brazil.
2. *punctum* Fairmaire, Rev. Memb. 318. 17 (1846). — **Pl. 4, fig. 46.** Brazil.

56. GENUS NASSUNIA STAL

Nassunia Stal, Rio Jan. Hem. II : 30 (1862).

Characters : Medium sized, robust insects with stout diverging suprahumerals and entirely free tegmina. Head triangular; base arcuate; eyes ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus slightly swollen in center, extending for half its length below the inferior margins of the genæ. Pronotum convex, moderately elevated, not compressed, tectiform; metopidium straight; median carina strongly percurrent; humeral angles weak, blunt, triangular; suprahumeral horns stout, sharp, diverging, extending outward and upward; posterior process strong, tectiform, suddenly acuminate, extending beyond end of abdomen but not reaching tips of tegmina; scutellum entirely concealed. Tegmina entirely free, hyaline; five apical cells with the median cell truncate at base; one discoidal cell; veins strong and slightly raised; apical limbus broad. Legs simple; hind tarsi the longest.

Type *bistillata* Stal.

Geographical distribution : This genus is known only from South America with the following records of distribution.

1. *binotata* Fairmaire, Rev. Memb. 291. 3 (1846). Brazil.

2. *bipunctata* Fairmaire, Rev. Memb. 290. 1 (1846). — **Pl. 4, fig. 47.** Brazil, Peru.
3. *bispina* Fairmaire, Rev. Memb. 290. 2 (1846). Colombia, Panama.
4. *bistillata* Stal, Rio Jan. Hem. II : 31. 1 (1862). Brazil.
5. *conficita* Walker, List Hom. B. M. Suppl. 139 (1858). Brazil.
6. *dalmani* Stal, Rio Jan. Hem. II : 31. 2 (1862). Brazil.
7. *fortis* Walker, List Hom. B. M. Suppl. 132 (1858). Brazil.
8. *gentilis* Breddin, Soc. Ent. XVI : 178 (1902). Brazil.
9. *nigrofascia* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 13 (1922). Peru.
10. *trux* Breddin, Soc. Ent. XVI : 178 (1902). Brazil.

57. Genus TOMOGONIA Stal

Tomogonia Stal, Bid. Memb. Kan. 258 (1869).
Tauriona Buckton, Mon. Memb. 259 (1903).
Temogonia (sic) Goding, Memb. Ecuad. 36 (1920).

Characters : Medium sized, slender-bodied forms, with a convex pronotum, two elongate discoidal cells in the corium and with the tegmina entirely exposed; the suprahumeral horns are very variable, ranging from mere blunt protuberances to long, sharp processes. Head triangular, smooth; base strongly arcuate and weakly sinuate; eyes round; ocelli large, glassy, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus extending for one-third its length below inferior margins of genæ, tip rounded and continuing the line made by the margins of the genæ. Pronotum convex, tectiform, slightly impressed on each side behind suprahumerals; metopidium sloping; median carina obsolete on metopidium but present on dorsum and posterior process; humeral angles broad, blunt, rounded; suprahumeral horns variable in length but always present and usually projecting outward; posterior process strong, carinate, suddenly acuminate and reaching to a point about half-way between the internal angles and the tips of the tegmina; scutellum completely concealed. Tegmina entirely free, broad, smoky-hyaline; five apical cells with the median cell truncate at base; two elongate discoidal cells with veins somewhat curved; apical limbus broad. Hind wings with four apical cells and one discoidal cell. Legs simple; all tarsi about equal in length.

Type *vittatipennis* Fairmaire.

Geographical distribution : A South and Central American genus reported from the following countries :

1. *composiana* Goding, Memb. Ecuad. 36 (1920). Ecuador.
2. *obesa* Buckton, Mon. Memb. 259 (1903). Ecuador.
3. *pectoralis* Stal, Bid. Memb. Kan. 259. 2 (1869). Colombia, Peru.
4. *vittatipennis* Fairmaire, Rev. Memb. 293. 8 (1846). — **Pl. 4, fig. 48.** Guatemala, Colombia.

58. Genus BUBALOPA Stal

Bubalopa Stal, Bid. Memb. Kan. 255 (1869).

Characters : We are very suspicious that *Bubalopa* Stal is a synonym of *Eualthe* Stal. The only real difference between these genera is supposed to be the entirely free tegmina in the former and the

partly covered tegmina of the latter. This would be a good character if it were constant but we find that there is much variation in this respect in both genera since the development of the sides of the pronotum is not uniform in either. Usually, however, in *Bubalopa* the corium is fully exposed, even though the clavus may be concealed, and on the strength of this difference we are allowing the genus to stand. The other characters are much the same as in *Eualthe* and are as follows : Head triangular, about as broad as high; base strongly arcuate; eyes distinctly triangular; ocelli large, prominent, about equidistant from each other and from the eyes and situated slightly below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus faintly trilobed, extending for half its length below inferior margins of genæ and continuing the line of the face made by these margins. Pronotum somewhat swollen anteriorly, tectiform, dorsum sinuate; metopidium straight, about as broad as high; median carina percurrent; humeral angles very weak, rounded; suprahumeral horns strong, heavy, triquerate, extending outward and upward; posterior process very long, slender, tectiform, gradually acuminate, extending well beyond the apices of the tegmina; scutellum entirely concealed. Tegmina almost entirely exposed, sometimes the clavus hidden; long, narrow, fuscous-hyaline, veins prominent, tips rounded; five apical and two discoidal cells; apical limbus narrow. Legs simple; hind tarsi much longer than either of the other two pairs.

Type *furcata* Fairmaire.

Geographical distribution : The only species which are known in the genus were both described from Bogota and have never been reported from any other locality. They are as follows :

1. *furcata* Fairmaire, Rev. Memb. 314. 5 (1846). — **Pl. 4, fig. 49.** Colombia.
2. *obscuricornis* Stal, Bid. Memb. Kan. 256. 2 (1869). Colombia.

59. GENUS HYPHINOE STAL

Hyphinoe Stal, Bid. Hem. Syst. 558 (1867).

Characters : Robust, heavy-bodied insects with strong, blunt suprahumeral horns and free tegmina. Head triangular, roughly sculptured; base arcuate; eyes triangular; ocelli about equidistant from each other and from the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus broad, extending for half its length below inferior margins of genæ. Pronotum elevated, heavy and more or less swollen in front, usually impressed on each side; metopidium convex, higher than broad; median carina weakly percurrent; humeral angles weak, rounded; suprahumeral horns heavy, triquerate, blunt, usually extending directly outward and very little upward; posterior process suddenly narrowed because of a distinct step behind bulbous base, tectiform, blunt, extending to a point about half way between internal angles and tips of tegmina; scutellum entirely concealed. Tegmina free, broad, semiopaque; veins heavy; tips broadly rounded; five apical and two discoidal cells; apical limbus broad. Legs simple; hind tarsi longest.

Type *cuneata* Germar.

Geographical distribution : This genus is widely distributed over South and Central America and some of the individual species seem to have a wide range. The records up to the present are as follows :

1. *asphaltina* Fairmaire, Rev. Memb. 319. 22 (1846). Mexico, Guatemala, Panama, Colombia, Venezuela, Nicaragua.
   apriformis Walker, List Hom. B. M. Suppl. 144 (1858).
   pubescens Walker, List Hom. B. M. Suppl. 144 (1858).
   morio Stal, Bid. Memb. Kan. 257. 3 (1869).

2. *bigutta* Walker, List Hom. B. M. Suppl. 142 (1858). — **Pl. 4, fig. 50.** — Guatemala, Mexico.

3. *camelus* Gray, An. King. Ins. II : 260 (1832). — Mexico.
   sagata Germar, Rev. Silb. III : 245. 2 (1835).
   viridissima Walker, List Hom. B. M. 572. 21 (1851).
   valida Walker, List Hom. B. M. 524. 16 (1851).
   obliqua Walker, Ins. Saund. 73 (1858).

4. *cornuta* Distant, Ent. Month. Mag. XVI : 12 (1879). — Costa Rica.

5. *cuneata* Germar, Rev. Silb. III : 246. 3 (1835). — Mexico, Guatemala.
   globiceps Fairmaire, Rev. Memb. 319. 20 (1846).

6. *diabolica* Butler, Cist. Ent. II : 346. 6 (1878). — Colombia.

7. *hirsuta* Buckton, Trans. Linn. Soc. Zool. IX : 335 (1905). — Central America.

8. *inermis* Goding, Trans. Amer. Ent. Soc. LII : 107 (1926). — Ecuador.

9. *marginalis* Fallou, Rev. Ent. IX : 353 (1890). — Guatemala.

10. *ochracea* Fowler, B. C. A. II : 78. 10 (1895). — Guatemala.

11. *placida* Germar, Rev. Silb. III : 246. 4 (1835). — Brazil.

12. *proclivis* Distant, Trans. Ent. Soc. Lond. IV : 695 (1900). — Costa Rica.

13. *punctorum* Buckton, Mon. Memb. 124 (1903). — Brazil, Peru.

14. *purulensis* Fowler, B. C. A. II : 77. 7 (1895). — Guatemala.

15. *quadrimaculata* Buckton, Mon. Memb. 121 (1903). — Brazil.

16. *tau* Fowler, B. C. A. II : 76. 5 (1895). — Guatemala, Panama.
   atitlana Fowler, B. C. A. II : 76 (1895).
   subfusca Buckton, Mon. Memb. 122 (1903).

17. *thoracata* Distant. Trans. Ent. Soc. Lond. IV : 695 (1900). — Costa Rica.

18. *vulpecula* Fowler, B. C. A. II : 77. 8 (1895). — Panama, Brazil.

19. *yaguachiensis* Goding, Journ. N. Y. Ent. Soc. XXXVII : 11 (1929). — Ecuador.

60. Genus ALCMEONE Stal

Alcmeone Stal, Bid. Hem. Syst. 558 (1867).

Characters : This genus is closely related to *Hyphinoe* Stal, but differs in having the anterior portion of the pronotum far less bulbous, no distinct step before the posterior process, and with the suprahumeral horns and the posterior process very sharp and acuminate. Head triangular, broader than high; base straight at sides and strongly arcuate in center; eyes globular; ocelli large, prominent, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ straight; clypeus broad and continuing the line of the face made by the margins of the genæ. Pronotum heavy and elevated, somewhat swollen in front but with no sharp step before the posterior process; median carina almost obsolete; metopidium convex, wider than high; humeral angles weak and rounded; suprahumeral horns heavy, conical, sharp, extending almost directly outward; posterior process heavy, gradually acuminate, tip sharp and reaching a point about half way between the internal angles and the apices of the tegmina; scutellum entirely hidden. Tegmina free, broad, vitreous-hyaline; veins prominent; five apical and two discoidal cells; all cells of the corium long and narrow; apical limbus broad. Legs simple; tarsi all about equal in length.

Type *centrotoides* Fairmaire.

Geographical distribution : This genus is found in South and Central America and in Mexico with the following recorded localities :

1. *brevis* Walker, List Hom. B. M. 571. 19 (1851). — Brazil.
2. *caseoscalpris* Butler, Cist. Ent. II : 344. 6 (1878). — Brazil.
3. *centrotoides* Fairmaire, Rev. Memb. 317. 14 (1846). — Brazil.
4. *curvicornis* Stål, Bid. Mem. Kan. 256. 2 (1869). — Brazil.
5. *expansicornis* Fairmaire, Rev. Memb. 317. 15 (1846). — Brazil, Guatemala.
6. *godmani* Fowler, B. C. A. II : 72. 1 (1895). — Mexico.
7. *lata* Walker, List Hom. B. M. 571. 18 (1851). — Honduras.
8. *picea* Fairmaire, Rev. Memb. 316. 13 (1846). — **Pl. 5, fig. 51.** — Brazil, Colombia.
9. *unistriga* Goding, Trans. Amer. Ent. Soc. LII : 107 (1926). — Ecuador.

61. Genus ICTARANTHE Fowler

Ictaranthe Fowler, B. C. A. II : 79 (1895).

Characters : Phylogenetically this genus is unquestionably very close to *Hyphinoe* Stål but if it may be judged by the type species it bears a strong superficial resemblance to the genus *Ceresa* of the subfamily Smiliinæ. It differs from *Hyphinoe* in having sharp, acute suprahumeral horns and in having the anterior portion of the pronotum much less bulbous, and it may be distinguished from *Alcmeone* in having the cells of the corium irregular in shape rather than uniformly narrow and oblong. The more important generic characters areas follows : Head triangular, roughly sculptured; base arcuate; eyes ovate; ocelli large, prominent, equidistant from each other and from the eyes; inferior margins of genæ straight; clypeus ridged in center, extending for half its length below the inferior margins of the genæ. Pronotum elevated, somewhat swollen in front, lightly impressed on each side; dorsum convex and sloping; metopidium convex, broader than high; median carina percurrent; humeral angles triangular, blunt; suprahumeral horns strong, tricarinate, sharp, extending outward and upward; posterior process heavy, tectiform, sharp, extending to a point a little more than half way between the internal angles and the apices of the tegmina; scutellum entirely concealed. Tegmina free, hyaline, broad; veins prominent; cells of corium irregular in shape; five apical and two discoidal cells; apex rounded; apical limbus broad. Legs simple; hind tarsi somewhat longer than the others.

Type *latifrons* Fowler.

Geographical distribution : This genus is known only from the type species which was described from Panama but has since been reported from Brazil.

1. *latifrons* Fowler, B. C. A. II : 79 (1895). — **Pl. 5, fig. 52.** — Panama, Brazil.

62. Genus HEMIKYPTHA Metcalf

Hemikyptha Metcalf, Ent. News XXXVIII : 16 (1927).

Characters : This genus contains the largest insects in the family, some of the species measuring more than twenty-five millimeters in length and half that in height, including the pronotal

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Note : Stal must be written Stål. We beg to apologize for the misprint occurring pp. 1 - 94 inclusive.

horns. They are all large, robust insects with powerful upstanding suprahumerals and strongly elevated pronotums. Head obtusely triangular, smooth; base strongly arcuate and sinuate; eyes ovate; ocelli large, prominent, much nearer to each other than to the eyes and situated well below a line drawn through centers of eyes; inferior margins of genæ straight; clypeus extending for half its length below the inferior margins of the genæ. Pronotum heavy, robust, elevated; metopidium convex, broader than high; median carina faintly percurrent; humeral angles weak and rounded; suprahumeral horns long, strong, usually curved, sharp, and extending almost directly upward; dorsum arcuate, highest in center; posterior process heavy, tectiform, tricarinate, sharp, extending just about to the tips of the tegmina; scutellum entirely concealed. Tegmina broad, subhyaline, sometimes very slightly covered at the posterior ends by the overhanging sides of the pronotum but mostly free; five apical and two discoidal cells; apical limbus broad. Legs simple; hind tarsi slightly longer than the others.

Type *punctata* Fabricius.

Geographical distribution : This genus has been recorded only from Brazil and we have never seen a specimen in any museum from any other country. Eight species have been described as follows:

1. *apicalis* Walker, List Hom. B. M. 572 (1851). — Brazil.
2. *braziliensis* Fabricius, Syst. Ent. 676. 7 (1775). — Brazil.
3. *compressicornis* Fairmaire, Rev. Memb. 313. 3 (1846). — Brazil.
   truncaticornis Walker, Ins. Saund. 73 (1858).
   spatulosa Buckton, Mon. Memb. 137 (1903).
4. *crux* Linnæus, Syst. Nat. I : 435. 9 (1758). — Brazil.
5. *gigas* da Fonseca, Rev. Ent. V : 4. 425 (1935). — Brazil.
6. *lata* Walker, List Hom. B. M. 571. 18 (1851). — Brazil.
7. *marginata* Fabricius, Ent. Syst. IV : 12. 17 (1775). — **Pl. 5, fig. 53.** — Brazil.
   sinepsis Linnæus, Syst. Nat. II : 2095. 71 (1788)
   maculata Olivier, Enc. Meth. VII : 668. 5 (1792)
8. *punctata* Fabricius, Ent. Syst IV : 13. 21 (1775). — Brazil.
   scutelligera Lesson, Ill. Zool. Pl. 55. 2 (1831).
   cervus Germar, Rev. Silb. III : 247. 5 (1835).

63. Genus SUNDARION Kirkaldy

Sundarion Kirkaldy, Ent. XXXVII : 279 (1904).
Pyranthe (preoccupied) Stål, Bid. Hem. Syst. 558 (1867).

Characters : Medium sized insects with free tegmina, horizontal suprahumerals, and long, slender, posterior processes. Head subquadrangular, broader than high; base arcuate and strongly sinuate; eyes globular and protruding; ocelli large, much nearer to each other than to the eyes; inferior margins of genæ straight and sloping; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, elevated, highest point just behind the suprahumerals; metopidium convex; median carina percurrent; humeral angles blunt, triangular; suprahumeral horns long, strong, tricarinate, sharp, extending almost directly outward; posterior process gradually acuminate, tectiform, tricarinate, tip sharp and extending to a point about half way between internal angles and apices of tegmina; scutellum entirely concealed. Tegmina free, hyaline, broad, veins prominent; five apical and two discoidal cells; tip rounded; apical limbus broad. Legs simple; all tarsi about equal in length.

Type *flava* Fairmaire.

Geographical distribution : This is a strictly South American genus so far as present records indicate. The described species are as follows :

1. *acaciæ* Berg, Ann. Soc. Cien. Arg. XVI : 290 (1883).	Argentina, Uruguay.
2. *alata* Fairmaire, Rev. Memb. 317. 16 (1846).	Brazil.
3. *apicalis* Germar, Rev. Silb. III : 236. 10 (1835).	Brazil.
4. *auriculata* Stål, Bid. Memb. Kan. 254. 8 (1869).	Brazil.
5. *bimaculata* Fairmaire, Rev. Memb. 315. 9 (1846).	Brazil.
6. *brunniventris* Fairmaire, Rev. Memb. 316. 12 (1846).	Brazil.
7. *chilensis* Spinola, Gay Hist. Chile VII : 270. 1 (1852).	Chile.
8. *flava* Fairmaire, Rev. Memb. 314. 6 (1846). — **Pl. 5, fig. 54.**	Brazil.
9. *flavomarginata* Fairmaire, Rev. Memb. 315. 10 (1846).	Brazil, Argentina.
10. *frustratoria* Berg, Ann. Soc. Cien. Arg. XVI : 296 (1883).	Argentina.
11. *laticornis* Stal, Bid. Memb. Kan. 253. 6 (1869).	Brazil.
12. *longicornis* Fairmaire, Rev. Memb. 315. 17 (1846).	Brazil.
13. *xanthographa* Germar, Rev. Silb. III : 237. 13 (1835).	Brazil, Argentina.

GENERA OF TRIBE HETERONOTINI GODING

I. *Corium with two discoidal cells* . . . . HETERONOTUS Laporte.
II. *Corium with one discoidal cell*
  A. *Pronotum with one or more lateral ridges* . . . . HELIODORE Stål.
  B. *Pronotum without lateral ridges*
    1. *Head subquadrate, wider than high.* . . . . OMOLON Walker.
    2. *Head triangular* . . . . ANCHISTROTUS Buckton.

64. GENUS HETERONOTUS LAPORTE

Heteronotus Laporte, Ann. Ent. Soc. France I : 95 (1832).
Heniconotus Stål, Hem. Fabr. II : 36 (1869).

Characters : Large, gaudily-colored insects with long, narrow bodies characterized by the very nodulate and spinose pronotum. They are among the most bizarre of all of the Membracidæ. Head quadrate, much wider than high, usually smooth and without pubescence; base straight or weakly sinuate; eyes extremely large, globular and protruding; ocelli large, glassy, very much nearer to each other than to the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sloping and strongly sinuate; clypeus trilobed, extending for half its length below inferior margins of genæ. Pronotum usually bright colored, bearing swollen nodes and decorated with many spines; apex of posterior process usually globular and spinose. Tegmina hyaline, very long, extending far beyond both the abdomen and the posterior process; five apical and two discoidal cells. Legs simple; hind tarsi longest.

Type *spinosus* Laporte.

Geographical distribution : A large genus, widely distributed throughout South and Central America and Mexico, with the largest number of species reported from Brazil.

1. *abbreviatus* Fairmaire, Rev. Memb. 500. 5 (1846).	Brazil.

2. *æthiops* Butler, Cist. Ent. II : 359. 2 (1878).	Ecuador.
3. *albospinosus* Haviland, Zoologica VI : 3. 245 (1925).	British Guiana.
4. *belliger* Butler, Cist. Ent. II : 359. 3 (1878).	Ecuador, Brazil.
5. *bicornis* Lesson, Ill. Zool. Pl. 57, fig. 1 (1831). *bicinctus* Kirby, El. Ent. 249 (1892).	Brazil.
6. *delineatus* Walker, List Hom. B. M. Suppl. 154 (1858).	Brazil, Colombia.
7. *divisus* Walker, List Hom. B. M. Suppl. 156 (1858).	Brazil.
8. *flavolineatus* Laporte, Ann. Soc. Ent. France 96. 3 (1832). *inermis* Laporte, Ann. Soc. Ent. Fr. 1. 97 (1832). *furcatus* Gray, Anim King. Ins. 161 (1832) *reticulata* Burmeister, Rev. Silb. I : 227. 1 (1833). *signatus* Burmeister, Ent. II : 130. 1 (1839). *fowleri* Buckton, Mon. Memb. 141 (1903).	Brazil.
9. *flavomaculatus* da Fonseca, Arquiv. Instit. Biol. 7. 12 (1936).	Brazil.
10. *glanduliger* Lesson, Ill. Zool. 57, fig. 2 (1831). *nigricans* Laporte, Ann. Soc. Ent. Fr. I : 96. 2 (1832).	Brazil.
11. *horridus* Fabricius, Mant. Ins. II : 264. 15 (1787). *fuscus* Laporte, Ann. Soc. Ent. Fr. I : 98. 6 (1832). *bullifera* Burmeister, Rev. Silb. I : 229. 4 (1833). *excisus* Walker, List Hom. B. M. 593. 5 (1851).	Brazil.
12. *lethierryi* (nom. nov.) Goding, Cat. Memb. N. A. 453 (1894). *trinodosus* (preoccupied) Lethierry, Ann. Soc. Ent. Fr. 154 (1890).	Venezuela.
13. *leucotelus* Walker, List Hom B. M. Suppl. 155 (1858).	Brazil.
14. *nodosus* Germar, Mag Ent. IV : 30. 41 (1821).	Brazil.
15. *parvinodes* (nom. nov.) Butler, Cist. Ent. II : 361. 11 (1878). *leucotelus* (preoccupied) Walker, List Hom. B. M. Suppl. 339 (1858).	Brazil.
16. *quadrinodosus* Fairmaire, Rev. Memb. 299. 1 (1846). *quinquenodosus* Stål, Hem. Mex. 70. 425 (1864).	Mexico.
17. *spinosis* Laporte, Ann. Soc Ent. France I : 96 (1832). *armatus* Laporte, Ann. Soc. Ent. Fr. I : 97 (1832) *clavata* Perty, Del. Anim. 35 (1834). *abcisus* Walker, List Hom. B. M. 595. 16 (1851). *confusus* Butler, Cist. Ent. II : 360 (1878).	Brazil, British Guiana.
18 *strigosus* Butler, Cist Ent II : 361. 9 (1878).	Brazil.
19. *tridens* Burmeister, Rev. Silb. I : 229 (1833). — **Pl. 5, fig. 55.**	Brazil.
20. *trinodosus* Butler, Cist. Ent. II : 357. 2 (1878).	Mexico, Guatemala, Panama.
21. *vespiformis* Haviland, Zoologica VI : 247 (1925).	British Guiana.
22. *vulnerans* Germar, Rev. Silb. I : 228. 2 (1833). *stipatus* Goding, S. A. Memb. 248 (1929).	Brazil.
23. *xanthomelas* Walker, List Hom. B. M. Suppl. 339 (1858).	Brazil.

65. Genus HELIODORE Stål

Heliodore Stål. Bid. Hem. Syst. 559 (1867).

Characters : This genus was erected for the accommodation of those species which differed from the forms of the old genus *Combophora* (now *Anchistrotus*) as recognized by Stal, by having a tricarinate pronotum. At present the genus contains only the type species and may be set off from the

closely related genera *Anchistrotus* and *Omolon* by the ridges on the sides of the pronotum. Other generic characters as indicated by Stål are :

« Alis tegminibus dimidiis longioribus. Processu postico thoracis marginem interiorem clavi vel hujus venam longitudinalem tangente; tegminibus totis vel fere totis liberis. Corio areola discoidali unica instructo, ante medium inter venas longitudinales secundam et tertiam, basin versus in unam conjunctas, venula transversa destituto. Thorace tricarinato, præter carinam mediam percurrentum carinas duabus, pone oculos incipientibus, ad vel ultra medium dorsi extensis, instructo; ceteris ut in Combophora. »

These are the characters which we have used in constructing our key to the genera of the tribe and in determining the species used as our Plate Figure.

Type *laporti* Germar.

Geographical distribution : Known only from the type species from South America.

1. *laporti* Germar, Rev. Silb. III : 253. 2 (1835). — **Pl. 5, fig. 56.** Brazil.
   carinata Guerin, Icon. Règ. Anim 7 (1838).

66. Genus OMOLON Walker

Omolon Walker, Journ. Ent. I : 315 (1862).

Characters : We have never seen a representative of this genus but it has been recognized by Butler and by Goding who indicate that the genus is to be identified by the subquadrate head. Except for this character it would seem that the insects of this genus are in no way different from those of the genus *Anchistrotus*. Butler considered *Heliodore* a synonym of *Omolon* but apparently did not note either the shape of the head or the lateral carinæ in his diagnosis. We cannot figure this genus since we have no specimen of any of the three species and there is no published figure of any of them in the literature of the family.

Type *tridens* Walker.

Geographical distribution : The genus is known only from three species, all described by Walker, and all from Brazil, as follows :

1. *incongrua* Walker, List Hom. B. M. Suppl. 340 (1858). Brazil.
2. *tridens* Walker, Journ. Ent. I : 316 (1862). Brazil.
3. *varius* Walker, Journ. Ent I : 316 (1862). Brazil.

67. Genus ANCHISTROTUS Buckton

Anchistrotus Buckton, Mon. Memb. 147 (1903).
Combophora (preoccupied) Germar, Rev. Silb. I : 177 (1833).

Characters : A remarkable genus identified at once by the greatly swollen globular pronotum. The insects are rather brightly colored, mostly of large size, and conspicuous in both structure and markings. Head triangular, eyes ovate and prominent; ocelli large, nearer to each other than to the eyes and situated about on a line drawn through centers of eyes. Pronotum swollen into an enormous hollow globe and so weakly attached to the body that it is difficult to collect the specimens without detaching it. This bulbous expansion of the pronotum is generally armed with spines, particularly on

the posterior part. The pronotum narrows suddenly into a short posterior process which does not quite reach the apices of the tegmina. The scutellum is entirely concealed and the anterior portion of the pronotum is sloping, smooth and unarmed. The tegmina are hyaline with the tips rounded and with a broad apical limbus. The venation is inclined to be irregular, particularly in the apical area, so that the number of apical cells may vary, but there is only one discoidal cell. The legs are simple with the hind tarsi longer than either of the other two pairs.

Type *obesus* Buckton.

Geographical distribution : Only seven good species are here recognized although variations in some of the forms have resulted in several synonyms. However, these species are apparently represented by a very large number of individuals, since specimens are to be found commonly in most collections. The species which we believe to be distinct are as follows :

1. *beschii* Germar. Rev. Silb. I : 232. 14 (1833). — Brazil, Ecuador, Guatemala, Honduras.
   cucullata Perty, Del. Anim. 178 (1834).
2. *bucktoni* Goding, Journ. N. Y. Ent. Soc. XXXVII : 12 (1929). — Brazil.
3. *inanis* Fabricius, Syst. Rhyng. 6. 2 (1803). — Brazil, Colombia.
4. *maculata* Guerin, Icon. Règ. Anim. 7 (1838). — **Pl. 5, fig. 57.** — Brazil, Bolivia, Peru.
   consentanea Fairmaire, Rev. Memb. 505. 3 (1846).
5. *minor* Fairmaire, Rev. Memb. 505. 5 (1846). — Brazil.
   discontinua Walker, List Hom. B. M. Suppl. 157 (1858).
6. *obesus* Buckton, Mon. Memb. 147 (1903). — Brazil.
7. *obfuscata* Buckton, Mon. Memb. 147 (1903). — Brazil, Peru, Venezuela.

Subf. TRAGOPINÆ Stål

The subfamily *Tragopinæ*, while very distinct from the other subfamilies, and easily recognized by the small, flat, beetle-like appearance of the insects, as well as by the more technical characters of the pronotum and tegmina, is in great confusion in so far as the genera and species are concerned.

The five genera here recognized have been generally accepted but we are very suspicious of their validity because of the many intergrading forms. All of these genera were erected on characters which have been found to be far from distinctive. We have been unable to discover any good generic characters but we believe that the male genitalia, even though they are not readily adaptable for taxonomic work, may afford some structures which may eventually prove to be of some value in such studies.

In like manner, the species are in a very unsatisfactory state. Most of them have been described on the basis of the shape of the pronotum and on color markings, both of which characters are extremely variable. We have in our collection several hundred specimens which apparently do not belong to any known species but which we are as yet unwilling to describe as new because of intermediate forms and because of the absence of constant and reliable characters.

We are here accepting, on the basis of characters suggested by their authors, the groups of the subfamily as they have been proposed and as they appear in the literature of the family, with the recognition of the fact that future investigations may show that some of these divisions cannot stand. It will be seen that the characters used in the construction of the key to the genera are often comparative rather than distinct, and for that reason are far from satisfactory.

GENERA OF THE SUBFAMILY TRAGOPINÆ STÅL

I. *Humeral angles not produced into horns*

A. *Corium with one or more discoidal cells; apical limbus very broad; tegmina almost entirely covered by pronotum; venation very indistinct*

1. *Pronotum without lateral carinæ* . . . . TRAGOPA Latreille.

2. *Pronotum with lateral carinæ*

a. *Median carina strong; free part of tegmina punctate* . . . . TROPIDOLOMIA Stål.

aa. *No median carina; tegmina not punctate*. . . . . STILBOPHORA Stål.

B. *Corium with no discoidal cells; apical limbus moderate; tegmina at least half exposed; venation distinguishable* . . . . HORIOLA Fairmaire.

II. *Humeral angles produced into conical horns or tubercles*. . . . . CERATOPOLA Stål.

68. Genus TRAGOPA Latreille

Tragopa Latreille, Règ. Anim. V : 219 (1829).
Chelyoidea Buckton, Mon. Memb. 156 (1903).

Characters : The insects of this genus are small, globular or flattened, with a broad carapace-like pronotum and a superficial resemblance to beetles. They show a wide variety of color markings,

usually of some brilliancy. The tegmina are very largely covered by the pronotum, the apical limbus is broad and the venation is usually indistinct. The head is triangular and usually smooth; eyes small and globose; base straight or weakly sinuate; ocelli twice as far from each other as from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ straight; clypeus extending for half its length below inferior margins of genæ. Pronotum usually more or less flattened, almost completely covering the thorax, abdomen and tegmina, and entirely without horns, spines or other protuberances; metopidium sloping; median carina obsolete or only faintly percurrent; scutellum concealed; no definite posterior process, the posterior end of the pronotum gradually rounded and blunt. Tegmina largely concealed by the overhanging sides of the pronotum, generally less than one-third exposed; venation very faint; apical limbus broad. Legs simple; hind tarsi much longer than the others.

Type *albimacula* Germar.

Geographical distribution : A very large neotropical genus with a wide distribution over South and Central America but with by far the largest number reported from Brazil. The forty-nine species here listed probably represent only a small proportion of those which have actually been taken, and a very small percentage of those which actually exist.

1. *ænea* Perty, Del. Anim. 179 (1834).	Brazil.
2. *albifascia* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 16 (1922).	Bolivia.
3. *albimacula* Germar, Mag. Ent IV : 14. 6 (1821).	Brazil.
4. *annulata* Fabricius, Syst. Rhyng. 27. 5 (1803).	Brazil.
5. *bajulus* Germar, Rev. Silb. III : 309 (1835).	Brazil.
6 *bicolor* Goding, Bull. Brook. Ent. Soc. XXIII : 142 (1928).	Ecuador.
7. *bilinea* Walker, List Hom. B. M. Suppl. 152 (1858).	Brazil.
8. *bipartita* Fairmaire, Rev. Memb. 487. 13 (1846).	Brazil.
9. *bitriangulata* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 414 (1930).	Brazil.
10. *brunneimaculata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 18 (1922). — **Pl. 5, fig. 58.**	Bolivia.
11. *bucktoni* (nom. nov.) Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 21 (1922). *nitida* (preoccupied) Buckton, Mon. Memb. 156 (1903).	Brazil.
12. *bugabensis* Fowler, B. C. A. II : 85. 2 (1895).	Panama.
13. *cimicoides* Fabricius, Coquebert Ill. Ic : Pl. 18, fig. 6 (1801). *melanostigma* Perty, Del. Anim. 179 (1830). *bifacies* Walker, List Hom. B. M Suppl. 150 (1858).	Brazil.
14. *coccinella* Fairmaire, Rev. Memb. 486.9 (1846).	Brazil.
15. *cyanea* Burmeister, Rev. Silb. IV : 189. 9 (1836).	Brazil.
16. *decorata* Funkhouser, Can. Ent. XLVI : 406 (1914).	Bolivia.
17. *dimidiata* Fairmaire, Rev. Memb. 287. 12 (1846).	Brazil.
18. *discrepans* Walker, List Hom. B. M. Suppl. 150 (1858).	Brazil.
19. *dohrni* Fairmaire, Rev. Memb. 487. 10 (1846).	Brazil.
20. *fasciata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 21 (1922).	Brazil.
21. *fenestrata* Walker. List Hom. B. M Suppl. 151 (1858).	Brazil.
22. *frontalis* Fairmaire, Rev. Memb 489. 16 (1846).	Brazil.
23. *fulvovaria* Fairmaire, Rev. Memb. 488. 15 (1846).	Brazil.

24. *funerula* Fairmaire, Rev. Memb. 488. 14 (1846).	Brazil.
25. *globus* Germar, Mag. Ent. IV : 12. 4 (1821). *glabra* Latreille, Anim. King. 177 (1836).	Brazil.
26. *guianæ* Haviland, Zoologica VI : 3. 247 (1925).	British Guiana.
27. *humeralis* Fairmaire, Rev. Memb. 489. 18 (1846).	Brazil.
28. *insignis* Fowler, B. C. A. II : 85. 1 (1895).	Panama.
29. *irrorata* Goding, Bull. Brook. Ent. Soc. XXIII : 141 (1828).	Ecuador.
30. *lata* Stal, Bid. Memb. Kan. 231. 1 (1869).	Guiana.
31. *longa* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 17 (1922).	Peru.
32. *luteimaculata* Funkhouser, Can. Ent. XLVI : 406. 11 (1914).	Peru.
33. *maculata* Stal, Bid. Memb. Kan. 231. 2 (1869).	Colombia.
34. *maculidorsa* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 19 (1922).	Bolivia.
35. *marmorea* Fairmaire, Rev. Memb. 486. 7 (1846).	Brazil.
36. *morio* Fabricius, Syst. Rhyng. 26. 3 (1803).	Brazil, Colombia.
37. *nitida* Germar, Rev. Silb. III : 309 (1835).	Brazil.
38. *obesa* Goding, Bull. Brook. Ent. Soc. XXIII : 141 (1928).	Ecuador.
39. *occulta* Haviland, Zoologica VI : 3. 248 (1925).	British Guiana.
40. *ovalis* Burmeister, Rev. Silb. IV : 188. 7 (1836).	Brazil.
41. *parishi* (nom. nov.) Funkhouser, Cat. Memb. 177 (1927). *maculata* (preoccupied) Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 23 (1922).	Brazil.
42. *peruviana* (nom. nov.) Funkhouser, Cat. Memb. 177 (1927). *brunnea* (preoccupied) Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 23 (1922).	Peru.
43. *pubescens* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 17 (1922).	Peru.
44. *pumicata* Stål, Rio Jan. Hem. II : 31. 2 (1858).	Brazil.
45. *punctatissima* Fairmaire, Rev. Memb. 486. 8 (1846).	Brazil.
46. *scutellaris* Buckton, Mon. Memb. 156 (1903).	Brazil, British Guiana.
47. *tetyrides* Walker, List Hom. B. M. 580. 4 (1851).	British Guiana.
48. *triangulata* Buckton, Trans. Linn. Soc. Zool. IX : 331 (1905).	Unknown.
49. *zebra* Goding, Bull. Brook. Ent. Soc. XXIII : 141 (1928).	Ecuador.

69. GENUS TROPIDOLOMIA STÅL

Tropidolomia Stål, Hem. Fabr. II : 19 (1869).

Characters : Stål established *Tropidolomia* as a subgenus of *Tragopa* with the following description :

« Thorace parte antica in latera prostethii transiente, marginibus lateralibus anticis distinctis, in carinam, inter oculos et angulos laterales ductam, prominulis vel elevatis; lobo laterali prostethii minore, deorsum vergente, interdum tantum carinam simulante, extrorsum haud explanato. Frons apicem versus haud ampliata. »

The most noticeable characters of the genus are the high, thin, sharp median carina and the more or less elevated pronotum. The head is ovate with prominent ocelli which are very much farther from each other than from the eyes and situated well above a line drawn through centers of eyes. There is

no definite posterior process, the posterior end of the pronotum being triangular and not very sharp. The tegmina are almost entirely covered by the sides of the pronotum, only a narrow basal portion being exposed and this exposed portion heavy and coriaceous. The legs are simple with all of the tarsi about equal in length.

Type *auriculata* Olivier.

Geographical distribution : A South and Central American genus with about the same distribution as that of *Tragopa*.

1. *alacris* Burmeister, Rev. Silb. IV : 186. 3 (1836).	Brazil.
2. *auriculata* Olivier, Cigal. Tab. 8, fig. 38 (1780). — **Pl. 5, fig. 59.**	Brazil.
3. *bistriata* Burmeister, Rev. Silb. III : 252. 3 (1836).	Brazil.
4. *gibberula* Stoll, Cigal. 62 (1780).	Surinam.
5. *involuta* Fabricius, Syst. Rhyng. 27. 4 (1803). *obliqua* Germar, Mag. Ent. IV : 13. 5 (1821). *sacrata* Burmeister, Rev. Silb. IV : 186. 4 (1836).	Brazil.

70. Genus STILBOPHORA Stål

Stilbophora Stål, Hem. Fabr. II : 20 (1869).

Characters : *Stilbophora* was also described as a subgenus by Stål, with characters as follows :

« Corpore superne nitido, subtilissime punctulato; parte libera tegminum subtilissime obsoletissimeque remote punctulata, linea elevata media destituta; capite obtuso, majusculo, apice ab antico viso obtuse rotundato, parte apicali leviter depressa, margine apicali haud reflexo, fronte valde inflexa, transversa, apice medio truncata. »

The configuration of the pronotum, as above described by Stål, is not a dependable character since it shows great variation, but the absence of the median carina, the anterior lateral ridges, the rounded posterior apex of the pronotum and the impunctate tegmina should suffice for the recognition of the genus.

Type *nitidula* Fabricius.

Geographical distribution : So far as is known, the genus is limited to the northern countries of South America as indicated by the following species :

1. *gilviceps* Stål, Rio Jan. Hem. II : 31. 3 (1858).	Brazil.
2. *nitidula* Fabricius, Syst. Rhyng. 31. 20 (1803).	Brazil, Peru, Colombia, Venezuela.
3. *seminulum* Fabricius, Syst. Rhyng. 32. 21 (1803).	Brazil, Venezuela.
4. *tripartita* Fairmaire, Rev. Memb. 490. 25 (1846).	Brazil, British Guiana.
5. *xanthocephala* Germar, Mag. Ent. IV : 14. 7 (1821).	Brazil.

71. Genus HORIOLA Fairmaire

Horiola Fairmaire, Rev. Memb. 492 (1846).

Characters : The comments which we have made on the subfamily Tragopinæ regarding the unsatisfactory status of the genera and species apply particularly to the genus *Horiola* which was

erected on extremely vague and generalized characters. Burmeister (1835a) indicates two divisions of *Tragopa*, the first « without ears on the thorax near the shoulders » and the second « with ears on the side ». Since the size and structure of the humeral angles, to which Burmeister doubtless refers, is one of the most variable of all of the characters of the subfamily, these divisions are entirely unusable. Fairmaire, in establishing the genus *Horiola*, states that it represents the second division of Burmeister and gives as additional characters the acuminate posterior process, the partly exposed tegmina, the narrow apical limbus and the shape of the median apical cell. Goding and others have called attention to the indistinct venation with the absence of discoidal cells (a character difficult to determine without mutilating the specimen), and the more elongate shape of the body, but none of these characters are constant or reliable.

Theoretically this genus should be distinguished from the other genera of the subfamily by the narrower body, the sharper posterior process, the more exposed tegmina, the narrower apical limbus, the less distinct venation, the absence of discoidal cells in the corium and the larger humeral angles, but practically these characters are so variable, and so difficult to determine, and the gradation is so gradual from one genus to another that a large number of intermediate forms fail to fall positively into this scheme of classification.

Type *picta* Coquebert.

Geographical distribution : The genus is represented in South and Central America by the following species :

1. ***andreæ*** Burmeister, Rev. Silb. IV : 190. 11 (1836). — Brazil.
2. ***chi*** Burmeister, Rev. Silb. IV : 190. 12 (1836). — Brazil.
3. ***composita*** Walker, List Hom. B. M. 587. 9 (1851). — Venezuela.
4. ***fenestrata*** Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 20 (1922). — Peru.
5. ***lineola*** Fairmaire, Rev. Memb. 492. 2 (1846). — Brazil.
   tincola (sic) Buckton, Mon. Memb. 158 (1903).
6. ***picta*** Coquebert, Cigal. Pl. 16, fig. 89 (1780). — **Pl. 5, fig. 60.** — Brazil, Colombia, Panama.
   arcuata, Fabricius, Syst. Rhyng. 29. 12 (1803).
   lineola Fabricius, Syst. Rhyng. 30. 14 (1803).
   glabrata Fabricius, Syst. Rhyng. 31 (1803).
   elegantula Perty, Del. Anim. 178 (1830).
7. ***strigosa*** Fabricius, Syst. Rhyng. 30. 15 (1803). — Brazil, Colombia, Venezuela.
8. ***strigulosa*** Walker, List Hom. B. M. Suppl. 153 (1858). — Brazil.
9. ***trigona*** Walker, List Hom. B. M. 587. 8 (1851). — Colombia.
   latifrons Walker, List Hom. B. M. 588. 19 (1851).
10. ***venosa*** Walker, Ins. Saund. 76 (1858). — Unknown.

72. Genus CERATOPOLA Stål

Ceratopola Stål, Bid. Memb. Kan. 232 (1869).

Characters : *Ceratopola* was described as a subgenus of *Tragopa* by Stål on the strength of the cornute humeral angles and was raised to generic rank by Goding (1928) on the basis of the same character. Stål describes the group as follows : « Head somewhat prominent before the thorax, armed at the base with two conical horns. Thorax provided with a longitudinal ridge very distinctly acute, transversely depressed at apex, anterior margin very obtusely rounded, lateral anterior margin between the eyes and lateral angles provided with a ridge. »

The sharp median carina and the lateral ridges indicate that the genus is closely related to *Tropidolomia* but the produced humerals which are conical and cornute, are sufficient to distinguish *Ceratopola* from the other genera of the subfamily.

Type *corniculata* Stål.

Geographical distribution : Only two species have been described, both from South America.

1. *corniculata* Stål, Bid. Memb. Kan. 232. 3 (1869). Brazil.
2. *sodalis* Goding, Bull. Brook. Ent. Soc. XXIII : 140 (1928). Ecuador.

Subf. SMILIINÆ Stål

The subfamily Smiliinæ is the dominant subfamily in the New World and is widely distributed over both continents. No species of this subfamily has ever been reported from the Old World and the center of distribution of the group seems to be North America for the species are not in general tropical and more genera are found north of Mexico than have been reported in Central and South America.

Not only is the subfamily the dominant one in both North and South America but it is the best known of all of the groups of the Membracidæ because of the fact that in the United States, particularly, a considerable amount of attention has been given to the taxonomy of certain tribes and genera, and because the life histories of a number of species have been rather carefully studied.

The classification of this subfamily, based on the pioneer work of Stål and Fairmaire and elaborated by Goding, Van Duzee, Ball and others, has been generally accepted and seems satisfactory. The six tribes here recognized are apparently rather natural subdivisions and are easily characterized and defined.

TRIBES OF SUBFAMILY SMILIINÆ STÅL

I. *Wings with median apical cell petiolate*
- A. *Corium with 3 contiguous longitudinal veins originating at base* . . . . . SMILIINI Goding.
- B. *Corium with 2 contiguous longitudinal veins originating at base*
  - 1. *Pronotum without longitudinal ridges*
    - a. *Tegmina free* . . . . CERESINI Goding.
    - aa. *Tegmina partly covered by sides of pronotum* . . . . AMASTRINI Goding.
  - 2. *Pronotum with longitudinal rugæ or lines on posterior half* . . . . . POLYGLYPTINI Goding.

II. *Wings with median apical cell sessile, base truncate*
- A. *Tegmina more or less covered by sides of pronotum* . . . . TELAMONINI Goding.
- B. *Tegmina free* . . . . ACUTALINI Tribus nov.

GENERA OF TRIBE SMILIINI GODING

I. *Sides of pronotum punctate but without carinæ*
- A. *Corium without transverse vein near center of tegmina; one or no discoidal cells*
  - 1. *Pronotum elevated, compressed laterally*
    - a. *Dorsum highest in front; corium with one discoidal cell* . . . . . SMILIA Germar.
    - aa. *Dorsum highest in middle; corium with no discoidal cell*. . . . . ADIPPE Stål
  - 2. *Pronotum convex; not compressed laterally* . . . . GODINGIA Fowler.
- B. *Corium with a transverse vein near center of tegmina; two discoidal cells*
  - 1. *Dorsum elevated and compressed laterally*
    - a. *Humeral angles strongly produced*
      - b. *Costal margin of tegmina coriaceous and punctate*. . . . . . TELAMONANTHE Baker.

bb. *Costal margin of tegmina hyaline* . . . . ANTIANTHE Fowler.
aa. *Humeral angles weak; not strongly produced*
b. *Pronotum strongly inflated posteriorly* . . . . XANTHOLOBUS Van Duzee.
bb. *Pronotum not strongly inflated posteriorly*
c. *Dorsum low, distinctly sinuate at middle.* . . . . EVASHMEADEA Goding.
cc. *Dorsum rounded or high, not sinuate*
d. *Dorsum with a high swollen crest* . . . . GRANDOLOBUS Ball.
dd. *Dorsum without a high swollen crest*
e. *Dorsum highest in front* . . . . ATYMNA Stål.
ee. *Dorsum regularly arcuate, highest at middle* . . . . CYRTOLOBUS Goding.
2. *Dorsum convex, not laterally compressed* . . . . OPHIDERMA Fairmaire.

II. *Sides of pronotum with longitudinal carinæ or rugæ*
A. *Pronotum with a dorsal horn or process.*
1. *Corium with two discoidal cells*
a. *Dorsum compressed, arcuate* . . . . POLYRHYSSA Stål.
aa. *Dorsum convex, sinuate* . . . . METHEISA Fowler.
2. *Corium with one discoidal cell or none*
a. *Pronotal process arising from in front of humeral angles.* . . . . . POLYGLYPTODES Fowler.
aa. *Pronotal process arising from behind humeral angles*
b. *Pronotum with two large rounded elevations, deeply sulcate between.* ECUADORIA Goding.
bb. *Pronotum with a single dorsal horn*
c. *Dorsal horn small, often reduced to a mere tubercle* . . . . DIOCLOPHARA Kirkaldy.
cc. *Dorsal horn large, erect*
d. *Posterior process of horn declivous or sloping* . . . . . HILLE Stål.
dd. *Posterior process of horn convex or with a distinct step* . . GELASTOGONIA Kirkaldy.

B. *Pronotum unarmed*
1. *Pronotum convex.*
a. *Corium with two discoidal cells* . . . . HERANICE Stål.
aa. *Corium with one discoidal cell* . . . . MATURNA Stål.
2. *Pronotum highly elevated.* . . . . MEMBRACIDOIDEA Goding.

73. GENUS SMILIA GERMAR

Smilia Germar, Rev. Silb. 1 : 233 (1833).

Characters : A genus distinguished by the high, laterally compressed, semifoliaceous pronotum, weak humeral angles, tegmina almost entirely exposed with three contiguous longitudinal veins not joined by a median cross-vein, and with the median apical cell of the hind wing petiolate. Head triangular; base straight; eyes ovate; ocelli equidistant from each other and from the eyes; clypeus not extending below the inferior margins of the genæ but continuing the line of these margins. Pronotum highly elevated and laterally flattened, without ridges and highest in front; posterior apex suddenly narrowed to a short acute process which reaches to a point about half-way between internal angles and

tips of tegmina. Tegmina hyaline or smoky-hyaline, almost entirely free, with five apical and one discoidal cell and a very wide apical limbus. Legs simple; hind tarsi longest.

Type *centralis* Germar.

Geographical distribution : Sixty species have been assigned, at one time or another, to this genus, but all have been removed and placed in other genera except three. Of these, the type species is found in Mexico and the other two in the United States and Canada.

1. *camelus* Fabricius, Syst. Rhyng. 10. 18 (1803). — **Pl. 6, fig. 61.** — Canada, United States.
   - *vittata* Amyot and Serville, Hémip. 539 (1843).
   - *zimmermanni* Fairmaire, Rev. Memb. 308 (1846).
   - *guttata* Fitch, Cat Ins. N. Y. 49 (1851).
   - *betulæ* Goding, Can. Ent. XXV : 196 (1893).
   - *viridis* Goding, Cat. Memb. N. A. 426 (1894).
   - *compressa* Buckton, Mon. Memb. 191 (1903).
   - *silvestrii* Matausch, Journ. N. Y. Ent. Soc. XVIII : 172 (1910).
2. *centralis* Germar, Mag. Ent. IV : 22. 20 (1821). — Mexico.
3. *fasciata* Amyot and Serville, Hémip. 539. 2 (1843). — United States.

74. GENUS ADIPPE STÅL

Adippe Stål, Bid. Hem. Syst. 555 (1867).

Characters : Medium sized insects with moderately elevated and compressed pronotum and with the tegmina about half covered by the pronotum. Often rather gaudily decorated. Head triangular; base sinuate; eyes large and ovate; ocelli conspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; clypeus extending for half its length below inferior margins of genæ and continuing the line made by these margins. Pronotum laterally compressed, elevated, highest at about the middle, tectiform; median carina strong and percurrent but no strong lateral ridges; posterior apex of pronotum just about reaching tips of tegmina. Tegmina hyaline, about half exposed, three prominent longitudinal veins extending nearly parallel through basal half of corium; five apical and no discoidal cells; apical limbus broad. Legs simple; hind tarsi longest.

Type *alliacea* Germar.

Geographical distribution : This genus is found most commonly in Central America and the West Indies with a few species recorded from Mexico and South America.

1. *alliacea* Germar, Rev. Silb. III : 249. 7 (1835). — Brazil.
2. *concinna* Fowler, B. C. A. II : 135. 5 (1895). — Panama.
3. *grisea* Fowler, B. C. A. II : 136. 8 (1895). — Panama.
4. *hæretica* (nom. nov.) Distant, Trans. Ent. Soc. Lond. 694 (1900). — Nicaragua, Panama.
   - *maculata* (preoccupied) Fowler, B. C. A. II : 134. 2 (1894).
5. *histrio* Walker, Ins. Saund. 71 (1858). — Mexico, Colombia, Venezuela, Ecuador.
   - *ocellata* Buckton, Mon. Memb. 188 (1903).
   - *fasciata* Buckton, Mon. Memb. 189 (1903).
6. *inæqualis* Fowler, B. C. A. II : 135. 6 (1896). — Panama, Trinidad.
7. *maculata* Distant, Ent. Month. Mag. XLV : 11 (1879). — Costa Rica.
8. *nigrorubra* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 32 (1922). — Costa Rica.
9. *pardalina* Fowler, B. C. A. II : 134. 3 (1896). — Panama.
10. *quadrivittata* Stål, Bid. Memb. Kan. 234. 3 (1869). — Unknown.

11. *testudo* Buckton, Mon. Memb. 188 (1903). Colombia.

12. *zebrina* Fairmaire, Rev. Memb. 305. 12 (1846). — **Pl. 6, fig. 62.** Venezuela, Mexico, Guatemala, Honduras.
figurata Walker, List Hom. B. M. Suppl. 137 (1858).

75. Genus GODINGIA Fowler

Godingia Fowler, B. C. A. II : 139 (1896).

Characters : A monotypic genus represented by a fine large beautifully decorated species. We cannot improve on Fowler's excellent generic description which is as follows : « Rather broad and robust; head broader than long, triangularly produced in front; ocelli set far forward, nearer to each other than to the eyes, which are large and prominent; pronotum depressed and convex in front, with the metopidium very gradually declivous, broad almost to the apex and then abruptly narrowed to a short broad point; dorsum depressed and almost level from above the shoulders, which are slightly and obtusely prominent, until near the apex, where it is suddenly depressed and unites with the short apical process; central carina more distinct behind than in front; sides with a strong broad impression on each extending from the shoulders to behind the middle, where they meet the dorsal carina, which at this point is very distinct; tegmina ample, extending some way beyond the apex of the pronotum; corium with three veins proceeding from near the base, the ulnar vein not being united by a transverse venule, with five apical areas and one discoidal, the third apical area being triangular and stylate; clavus and a small part of the corium covered by the pronotum; legs cylindrical ».

Type *guerreroensis* Fowler.

Geographical distribution : Known only from the type species from Mexico.

1. *guerreroensis* Fowler, B. C. A. II : 139. 1 (1896). — **Pl. 6, fig. 63.** Mexico.

76. Genus TELAMONANTHE Baker

Telamonanthe Baker, Can. Ent. XXXIX : 115 (1907).

Characters : Small inconspicuous insects with a strong superficial resemblance to those of the genus *Telamona* but immediately distinguished by the petiolate third apical cell of the hind wing. The dorsal crest, the elevated and somewhat flattened dorsum and the general facies are very suggestive of *Telamona*. A distinctive generic character is the strongly punctate basal and costal area of the tegmina. The head is subquadrate, with the base arcuate and sinuate; eyes ovate, much wider than high; ocelli equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; clypeus extending for one-third its length below inferior margins of genæ, tip acute and pilose. Pronotum elevated into a flattened crest occupying at least half of the dorsum; metopidium convex, broader than high; humeral angles strongly produced into broad, flat, triangular extensions; median carina strongly percurrent; posterior process tectiform and extending beyond tips of tegmina. Tegmina about half covered by the sides of the pronotum; three parallel longitudinal veins originating at the base, the radial and median connected by a cross-vein; five apical and two discoidal cells. Legs slightly flattened; all tarsi about equal in length.

Type *rileyi* Goding.

Geographical distribution : The three known species of the genus have been reported only

from the central and western parts of the United States, specifically from Illinois, Kansas, Colorado and California

1. *modesta* Goding, Cat. Memb. N. A. 420. 74 (1894). — United States.

2. *pulchella* Ball, Proc. Biol. Soc. Wash. XVI : 181 (1903). — **Pl. 6, fig. 64.** — United States.
   brevis Ball, Proc. Biol. Soc. Wash. XVI : 181 (1903).

3. *rileyi* Goding, Ent. News III : 108 (1892). — United States.
   coquilletti Goding, Cat. Memb. N. A. 420. 75 (1894).
   pulchra Goding, Ent. News III : 1. 109 (1892).

77. Genus ANTIANTHE Fowler

Antianthe Fowler, B. C. A. II : 137 (1895).
Janthe (preoccupied) Stål, Bid. Hem. Syst. 554 (1867).
Agondas Kirkaldy, Ent. XXXV : 316 (1902).

Characters : Large green insects with high flattened pronotum, long humeral angles, and partly covered hyaline tegmina. Head subquadrate, triangular in front; base strongly sinuate; eyes ovate; ocelli prominent, nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ straight; clypeus blunt and extending for one-third its length below the inferior margins of genæ, continuing the line of these margins. Pronotum highly elevated in a flattened crest, highest in front and gradually sloping to the posterior apex; metopidium straight, triangular; humeral angles produced into long flattened horns; median carina strongly percurrent; sides of pronotum roughly punctate but without ridges. Tegmina hyaline; about half covered by the sides of the pronotum; three longitudinal veins arising from the base, the inner two joined near the center by a transverse vein; five apical and two discoidal cells; apical limbus broad; apices of tegmina just about reaching the posterior process of the pronotum. Legs simple and cylindrical; all tarsi about equal in length.

Type *expansa* Germar.

Geographical distribution : This is a Central American genus which has spread northward into Mexico and the United States and southward into northern South America.

1. *expansa* Germar, Rev. Silb. III : 245. 1 (1835). — **Pl. 6, fig. 65.** — Mexico, Yucatan, Honduras, Guatemala, Nicaragua, Costa Rica, Panama, Colombia, Porto Rico, United States.
   cucullata Burmeister, Handb. Ent. II : 140. 4 (1835).

2. *foliacea* Stål, Hem. Mex. 71. 433 (1864). — Mexico, Guatemala, Costa Rica, Brazil.

3. *humilis* Fowler, B. C. A. II : 138 (1895). — Mexico, Yucatan.

4. *reversa* Walker, Ins. Saund. 72 (1858). — Mexico, Guatemala.

5. *viridissima* Walker, List Hom. B. M. Suppl. 138 (1858). — Mexico, Colombia, Venezuela.

78. Genus XANTHOLOBUS Van Duzee

Xantholobus Van Duzee, Stud. N. A. Memb. 78. 95 (1908).

Characters : A genus split off of *Cyrtolobus* on the character of the swollen posterior part of the

pronotum. Head triangular, roughly sculptured; base weakly arcuate; eyes ovate; ocelli inconspicuous, about equidistant from each other and from the eyes and situated slightly below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ. Pronotum highly convex without horns or other processes; posterior half strongly inflated and then suddenly narrowed into a blunt posterior process which reaches to a point about half way between internal angles and tips of tegmina; metopidium convex, wider than high; humeral angles weakly produced; median carina percurrent. Tegmina almost entirely exposed; hyaline or smoky-hyaline; three roughly parallel longitudinal veins with the two inner ones connected by a cross-vein; five apical and one discoidal cell; apical limbus broad. Legs simple and cylindrical; all tarsi about equal in length.

Type *inflatus* Van Duzee.

Geographical distribution : A North American genus limited in distribution according to present records to the United States and Canada but represented in practically all parts of these two countries.

1. *altus* Ball, Proc. Biol. Soc. Wash. 45. 81 (1932).	Arizona.
2. *arenatus* Ball, Journ. Wash. Acad. Sci. XXVII : 481 (1937).	Texas.
3. *coconinus* Ball, Proc. Biol. Soc. Wash. 45. 80 (1932).	Arizona.
4. *hirsutus* Ball, Proc. Biol. Soc. Wash. 45. 81 (1932).	Arizona.
5. *inflatus* Van Duzee, Stud. N. A. Memb. 97. 3 (1908).	Colorado, Arizona.
6. *lateralis* Van Duzee, Stud. N. A. Memb. 96. 2 (1908).	New York, Connecticut.
7. *muticus* Fabricius, Gen. Ins. Mant. 297. 12 (1776). — **Pl. 6, fig, 66.** *trilineata* Say, Narr. Long's Exped. 300. 2 (1824).	Quebec, central and eastern United States.
8. *nigrocincta* Ball, Proc. Biol. Soc. Wash. 46. 26 (1933).	Arizona.
9. *nitidus* Van Duzee, Stud. N. A. Memb. 97. 4 (1908).	Eastern and southern United States.
10. *tumidus* Walker, List Hom. B. M. 560. 14 (1851).	Florida.

79. Genus EVASHMEADEA Goding

Evashmeadea Goding, Cat. Memb. N. A. 436 (1894).
Ashmeadea (nom. nud.) Goding, Trans. Amer. Ent. Soc. XIX : 258 (1892).

Characters : A genus belonging to the Cyrtolobus group but distinguished by the low distinctly sinuate dorsum. Head subquadrate with apex regularly rounded; base gently arcuate; eyes globular; ocelli large, equidistant from each other and from the eyes and situated slightly below a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus short, not extending below inferior margins of genæ and continuing the curve made by these margins. Pronotum low, lightly compressed, strongly keeled, distinctly sinuate at middle; metopidium sloping, wider than high; median carina strongly percurrent; humeral angles weak, triangular, blunt; apex of posterior process gradually acute, extending to a point about half way between internal angles and tips of tegmina. Tegmina hyaline, the clavus and a small part of the corium covered by the pronotum; three contiguous longitudinal veins; with a cross-vein connecting the inner pair; median apical cell petiolate; five apical and two discoidal cells; apical limbus broad. Legs simple and subcylindrical; all tarsi about equal in length.

Type *concinna* Goding.

Geographical distribution : Species of this genus have been reported only from Mexico and southwestern United States as follows :

1. *carinata* Stål, Hem. Mex. 71. 435 (1864). — Mexico.
   discoidalis Fowler, B. C. A. II : 141 (1896).
2. *concinna* Goding, Cat. Memb. N. A. 437. 128 (1894). — **Pl. 6, fig. 67.** — Arizona.

80. GENUS ATYMNA STÅL

Atymna Stål, Bid. Hem. Syst. 554 (1867).

Characters : *Atymna* was described by Stål as a subgenus of *Smilia* to accomodate those species which were small in size and had the pronotum much higher in front than behind as illustrated by the species *castaneæ* which he designated as the type. The other generic characters are much the same as in *Cyrtolobus* and are as follows : Head triangular; base weakly sinuate; eyes globular; ocelli prominent; equidistant from each other and from the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for nearly half its length below inferior margins of genæ. Pronotum laterally compressed, elevated, tectiform, sharply keeled, much higher in front than behind, gradually sloping from the top of the anterior crest to the apex of the pronotum which reaches just beyond the internal angles of the tegmina; no horns or other processes; metopidium sloping, wider than high; median carina strongly percurrent; humeral angles weak, triangular and blunt; no lateral ridges. Tegmina almost entirely exposed; hyaline or clouded; three longitudinal veins in the corium with the inner pair connected by a cross-vein; five apical cells with the median cell petiolate; two discoidal cells; apical limbus broad. Legs simple; tarsi equal in length.

Type *castaneæ* Fitch.

Geographical distribution : Widely distributed over the United States and Canada with species reported from practically every section of these countries and with two species described from South America.

1. *atromarginata* Goding, Bull. Brook. Ent. Soc. XXIII : 137 (1928). — Ecuador.
2. *castaneæ* Fitch, Cat. Hom. N. Y. 49 (1851). — **Pl. 6, fig. 68.** — Canada, United States.
   nigricephala Emmons, N. Y. Agr. Rept. V : 157 (1854).
3. *helena* Woodruff, Journ. N. Y. Ent. Soc. XXIII : 1. 44 (1915). — Canada, northeastern United States.
4. *inornata* Say, Journ. Acad. Nat. Sci. Phila. V : 299 (1831). — Canada, United States.
5. *pilosa* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 273 (1919). — Peru.
6. *querci* Fitch, Cat. Hom. N. Y. 49. 672 (1851). — Canada, United States.
7. *reticulata* Ball, Journ. Wash. Acad. Sci. XXVII : 11. 481 (1837). — Arizona.
8. *simplex* Van Duzee, Stud. N. A. Memb. 93. 1 (1908). — Arizona, Texas.

81. GENUS GRANDOLOBUS BALL

Grandolobus Ball, Proc. Biol. Soc. Wash. 45. 75 (1932).

Characters : This genus was erected by Ball to accommodate the single species *grandis* which had formerly stood in the genus *Cyrtolobus* because, as he correctly states : « This species has always

been a misfit in the genus *Cyrtolobus* and rendered that genus hard to define. » Ball distinguishes the genus *Grandolobus* as follows :

« Resembling *Smilia* in general size and form but with the crest shorter and farther back from the metopidium, the apical process of the pronotum long and slender as in *Cyrtolobus*.

» Face broader than in *Smilia*, as broad as in *Cyrtolobus*, the metopidium broader and rounding over above as seen from the front rather than triangular as in *Smilia*. Pronotum, as seen from side, long and slender with a rather short high, foliaceous crest arising just back of the line of the metopidium in a fairly symmetrical arch a little longer than its height. This crest occupies a little over half of the length of the pronotum arising with a slight sinuation in front and with an obtuse angle behind. There is a major inflation in the middle and a minor one near the posterior angle. The elytra are long and narrow with typical *Cyrtolobus* venation, the apical cell small, almost round with a long pedicel. »

Type *grandis* Van Duzee.

Geographical distribution : The single species assigned to this genus was described from Arizona, but *inæqualis* Fowler, from Mexico, seems to be a synonym.

1. *grandis* Van Duzee, Stud. N. A. Memb. 84. 6 (1908). — **Pl. 6, fig. 69**. Arizona, Mexico.
   inæqualis Fowler, B. C. A. II : 142. 6 (1896).

82. Genus CYRTOLOBUS Goding

Cyrtolobus Goding, Trans. Amer. Ent. Soc. XIX : 257 (1892).
Cyrtosia (preoccupied) Fitch, Cat. Hom. N. Y. State 49 (1851).

Characters : One of the largest and most wide-spread of any of the membracid genera in North America, which area seems to be its center of distribution. The insects of this genus are small, rather inconspicuous, with elongate bodies and regularly arcuate, slightly flattened pronotums, and are usually tree-inhabiting. The genus may be rather easily recognized by the following characters : Head subtriangular; base weakly arcuate; eyes ovate, wider than high; ocelli prominent, equidistant from each other and from the eyes and situated slightly below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus weakly trilobed, extending for half its length below inferior margins of genæ. Pronotum moderately elevated, laterally compressed, arcuate, highest at middle; punctate but with no lateral ridges; metopidium sloping, wider than high; median carina strongly percurrent; humeral angles weak and rounded; posterior apex of pronotum gradually narrowed to an acute point which extends beyond internal angles of tegmina but does not reach the tips. Tegmina largely free, only a small part of the corium being covered by the sides of the pronotum; hyaline or clouded; corium with three prominent longitudinal veins of which the inner pair is connected by a cross-vein ; five apical and two discoidal cells; median apical cell petiolate; apical limbus broad. Legs simple; all tarsi about equal in length.

Type *fenestratus* Fitch.

Geographical distribution : This is distinctly a North American genus with representatives in all parts of the United States and with species in Canada and in Mexico. The localities given for the following species are roughly grouped according to areas. Where a species has been reported from only one state, that state is mentioned. The designation « United States » indicates that the species is found in practically all parts of the country.

1. *acuminatus* Woodruff, Crit. Obs. 7 (1924). Northeastern U. S.

2. *acutus* Van Duzee, Stud. N. A. Memb. 88. 12 (1908). — Western U. S.
3. *arcuatus* Emmons, N. Y. Agr. Rept. V : 154 (1854). — Eastern and southern U. S.
4. *arizonæ* Ball, Proc. Biol. Soc. Wash. 45. 77 (1932). — Arizona.
5. *auroreus* Woodruff, Crit. Obs. 22 (1924). — Northeastern U. S.
6. *celsus* Van Duzee, Stud. N. A. Memb. 81. 1 (1908). — United States
7. *cinctus* Van Duzee, Stud. N. A. Memb. 86. 9 (1908). — Northeastern U. S.
8. *cinereus* Emmons, N. Y. Agr. Rept. V : 156 (1854). — Eastern U. S.
9. *clarus* Woodruff, Crit. Obs. 16 (1924). — Southern U. S.
10. *coronatus* Ball, Proc. Biol. Soc. Wash. 45. 77 (1932). — Arizona.
11. *cristiferus* Stål, Hem. Mex. 71. 433 (1864). — Mexico.
12. *discoidalis* Emmons, N. Y. Agr. Rept. V : 157 (1854). — Eastern and southern U. S.
13. *distinguendus* Fowler, B. C. A. II : 141. 4 (1896). — Mexico.
14. *dixianus* Woodruff, Crit. Obs. 10 (1924). — Southern and eastern U. S.
15. *fenestratus* Fitch, Cat. Hom. N. Y. 49. 678 (1851). — United States.
16. *flavolatus* Woodruff, Crit. Obs. 54 (1924). — Eastern U. S.
17. *frigidus* Ball, Proc. Biol. Soc. Wash. 45. 77 (1932). — Arizona.
18. *fuliginosus* Emmons, N. Y. Agr. Rept. V : 154 (1854). — Eastern and southern U. S.
19. *funkhouseri* Woodruff, Crit. Obs. 13 (1924). — Eastern U. S.
20. *fuscipennis* Van Duzee, Stud. N. A. Memb. 91. 18 (1908). — Eastern and central U. S.
21. *gloveri* Goding, Cat. Memb. N. A. 434. 118 (1894). — Eastern U. S.
22. *gramatanus* Woodruff, Crit. Obs. 44 (1924). — Northeastern U. S.
23. *gratiosus* Woodruff, Crit. Obs. 39 (1924). — Eastern and central U. S.
24. *griseus* Van Duzee, Stud. N. A. Memb. 90. 16 (1908). — Eastern and central U. S.
25. *inermis* Emmons, N. Y. Agr. Rept. V : 157 (1854). — United States.
26. *intermedius* Emmons, N. Y. Agr. Rept. V : Pl. 15, fig. 16 (1854). — Eastern and southern U. S.
27. *limus* Van Duzee, Stud. N. A. Memb. 87. 11 (1908). — Western U. S.
28. *maculifrontis* Emmons, N. Y. Agr. Rept. V : 156 (1854). — United States.
29. *oblongatus* Ball, Proc. Biol. Soc. Wash. 45. 76 (1932). — Arizona.
30. *ovatus* Van Duzee, Stud. N. A. Memb. 82. 2 (1908). — Eastern and southern U. S.
31. *pallidifrontis* Emmons, N. Y. Agr. Rept. V: Pl. 13, fig. 7 (1854). — Canada, United States.
    ornata Provancher, Pet. Faun. Can. III : 240. 4 (1886).
32. *parvulus* Woodruff, Crit. Obs. 31 (1924). — Northeastern U. S.
33. *pictus* Van Duzee, Proc. Calif. Acad. Sci. XIV : 17. 408. 22 (1925). — Utah.
34. *pulchellus* Woodruff, Crit. Obs. 29 (1924). — Northeastern U. S.
35. *puritanus* Woodruff, Crit. Obs. 33 (1924). — Canada, east. and centr. U.S.
36. *rufulus* Woodruff, Crit. Obs. 46 (1924). — United States.
37. *togatus* Woodruff, Crit. Obs. 52 (1924). — Southern U. S.
38. *tuberosus* Fairmaire, Rev. Memb. 307. 6 (1846). — East., south. and centr. U.S.
    semifascia Walker, List Hom. B. M. 561. 16 (1851).
39. *vanduzei* Goding, Cat. Memb. N. A. 426. 92 (1924). — Western U. S.
40. *vau* Say, Journ. Acad. Sci. Phila. VI : 299. 6 (1831).— **Pl. 6, fig. 70.** — Canada, United States.
    sculpta Fairmaire, Rev. Memb. 307. 5 (1846).
    nigra Goding, Can. Ent. XXV : 172 (1893).
    punctifrontis Goding, Can. Ent. XXV : 172 (1893).
    tricincta Goding, Can. Ent. XXV : 172 (1893).
    maculata Buckton, Mon. Memb. 174 (1903).

41. *virescens* Fowler, B. C. A. II : 141. 3 (1896). Mexico.
42. *viridis* Emmons, N. Y. Agr. Rept. V : 154 (1854). Eastern and central U. S.
43. *vittatipennis* Fowler, B. C. A. II : 142. 5 (1896). Mexico.
44. *woodruffi* Ball, Proc. Biol. Soc. Wash. 45. 76 (1932). Arizona.

83. Genus OPHIDERMA Fairmaire

Ophiderma Fairmaire, Rev. Memb. 493 (1946).

Characters : Medium sized, elongate forms with the pronotum regularly and roundly convex, not compressed, the posterior apex of the pronotum extending to a point about half way between the internal angles and the tips of the tegmina which are largely exposed. Head subquadrate, twice as broad as high; base weakly sinuate; apex obtusely triangular; eyes subovate; ocelli large, about equidistant from each other and from the eyes and situated somewhat below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ, tip blunt. Pronotum moderately convex, not laterally compressed, regularly rounded; metopidium sloping, much wider than high; humeral angles weak, blunt and rounded; median carina faintly percurrent; sides of pronotum sometimes weakly impressed, usually punctate and pubescent but never ridged; posterior apex acute and reaching to a point about half way between internal angles and tips of tegmina. Tegmina well exposed, only the clavus and a small portion of the corium covered by the overhanging sides of the pronotum; corium with three strong longitudinal veins, the two inner ones connected by a cross-vein as in the *Cyrtolobus* group; five apical and two discoidal cells; median apical cell petiolate; apical limbus broad. Legs simple; hind tarsi a little longer than the others.

Type *salamandra* Faimaire.

Geographical distribution : This genus is particularly abundant in the United States but is represented also in Canada, Mexico and Central America with one species described from South America. The center of population seems to be the United States. As in the preceding genus, we have indicated general areas except for those species which are known only from a single state, and, as in former designations, the term « United States » indicates that the species has been reported from most of the larger faunal areas of the country.

1. *compacta* Gibson and Wells, Journ. N. Y. Ent. Soc. XXV : 4. 201 (1917). Arizona.
2. *definita* Woodruff, Journ. N. Y. Ent. Soc. XXVII : 4. 253 (1919). Canada, east. and south. U.S.
3. *evelyna* Woodruff, Journ. N. Y. Ent. Soc. XXVII : 4. 257 (1919). Eastern and southern U. S.
4. *fascipennis* Funkhouser, Journ. N.Y. Ent. Soc. XXVII : 2. 274 (1919). Bolivia.
5. *flava* Goding, Cat. Memb. N. A. 439. 133 (1894). Canada, United States.
6. *flavicephala* Goding, Cat. Memb. N. A. 439. 134 (1894). Eastern and southern U. S.
7. *grisea* Woodruff, Journ. N. Y. Ent. Soc. XXVII : 254 (1919). Eastern and central U. S.
8. *infantilis* Ball, Proc. Biol. Soc. Wash. 45. 78 (1932). Florida.
9. *mus* Fowler, B. C. A. II : 143. 1 (1896). Guatemala.
10. *nigrocincta* Van Duzee, Stud. N. A. Memb. 101. 6 (1908). Colorado.
11. *pallida* Van Duzee, Stud. N. A. Memb. 100. 5 (1908). Western U. S.

12. *panda* Ball, Proc. Biol. Soc. Wash. 45. 80 (1932). Arizona.

13. *pubescens* Emmons, N. Y. Agr. Rept. V : 157 (1854). Canada, United States.
flaviguttula Goding, Can. Ent. XXV : 172 (1893).

14. *salamandra* Fairmaire, Rev. Memb. 493. 1 (1846). — **Pl. 6, fig. 71.** Canada, United States.

15. *stonei* Ball, Proc. Biol. Soc. Wash. 45. 79 (1932). Florida.

16. *tricincta* Ball, Proc. Biol. Soc. Wash. 45. 78 (1932). Arizona.

84. GENUS POLYRHYSSA STÅL

Polyrhyssa Stål, Hem. Fabr. II : 26 (1869).

Characters : *Polyrhyssa* belongs to a group of genera which seems to center around the genus *Hille* Stål, characterized by strongly ridged sides of pronotum and the presence of a compressed frontal horn. It is particularly distinguished from the other nearly related genera by the two discoidal cells of the corium and the somewhat compressed, arcuate dorsum. Head triangular; base sinuate; eyes nearly globular; ocelli prominent, about equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ slightly curved; clypeus projecting for half its length below inferior margins of genæ and continuing the line made by these margins. Pronotum slightly elevated and somewhat compressed, with a short, compressed frontal horn; sides of pronotum strongly ridged with heavy longitudinal carinæ; metopidium straight, broader than high; humeral angles heavy, blunt, triangular; median carina strongly percurrent; dorsum regularly arcuate; posterior apex of pronotum gradually acuminate and just reaching the tips of the tegmina. Tegmina about half covered by the overhanging sides of the pronotum; venation inclined to be irregular but usually showing five apical and two discoidal cells; median apical cell triangular and petiolate; apical limbus narrow. Legs simple; hind tarsi a little longer than the others.

Type *cultrata* Fabricius.

Geographical distribution : Known only from the type species which was described merely as from « South America » but of which we have specimens from Colombia and Argentina.

1. *cultrata* Fabricius, Coq. Ill. Ins. II : 77 (1801). — **Pl. 6, fig. 72.** Colombia, Argentina.

85. GENUS METHEISA FOWLER

Metheisa Fowler, B. C. A. II : 132 (1895).

Characters : We are suspicious of the validity of this genus because of the fact that according to Fowler's description and according to the characters shown by the type species, if we have correctly identified this species, the genus would seem to differ from *Polyrhyssa* only in the matter of the more convex and sinuate dorsum and a slight difference (which may or may not be constant) in the position of the ocelli, structures which in our opinion do not represent satisfactory generic characters. Fowler regards this genus as standing between *Entylia* and *Publilia* on the one hand and *Hille* and *Lucilla* (now *Dioclophara*) on the other, but this is true of course also of *Polyrhyssa*. A study of *M. lucilodes* suggests the following generic characters : Head triangular, roughly sculptured; base strongly sinuate; eyes globular; ocelli large, prominent, farther from each other than from the eyes and situated on a line drawn

through centers of eyes; inferior margins of genæ sinuate; clypeus extending for one-third its length below inferior margins of genæ Pronotum more or less convex, hardly compressed, porrect frontal horn variable in length and usually conical rather than compressed; sides of horn and sides of pronotum bearing strong longitudinal ridges; dorsum distinctly sinuate, depressed at middle; posterior apex of pronotum gradually acuminate and extending just to the tips of the tegmina. Tegmina half covered by the overhanging sides of the pronotum; basal costal area strongly and thickly punctate and somewhat coriaceous; five apical and two discoidal cells; third apical cell nearly circular and petiolate; apical limbus narrow. Hind wings with four apical cells and no discoidal cell. Legs simple; posterior tarsi longest.

Type *lucillodes* Fowler.

Geographical distribution : A Central and South American genus represented by four species as follows :

1. *cucullata* Buckton, Mon. Memb. 186 (1903).	Unknown.
2. *fowleri* (nom. nov.) Funkhouser, Cat. Memb. 321 (1927). *sinuata* (preoccupied) Funkhouser, Can. Ent. XLVI : 362. 6 (1914).	Peru.
3 *lucillodes* Fowler, B. C. A. II : 132. 1 (1895). — **Pl. 6, fig. 73.**	Panama.
4. *sinuata* Buckton, Mon. Memb. 186 (1903).	Brazil.

86. Genus Polyglyptodes Fowler

Polyglyptodes Fowler, B. C. A. II : 128 (1896).

Characters : Medium sized, more or less triangularly shaped insects with elevated, flattened bodies, compressed frontal horn, strongly ridged pronotum and with tegmina only about one-fourth exposed. Head subtriangular; base arcuate; eyes ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ with its lateral margins continuing the facial line made by the margins of the genæ. Pronotum strongly elevated, considerably compressed, tectiform; porrect laterally flattened frontal horn arising from in front of humeral angles and extending forward and upward, with the tip rounded; metopidium keeled, about as broad as high; humeral angles strong, short and blunt; median carina strongly percurrent; dorsum depressed behind frontal horn, then arcuate, then gradually sloping to the posterior apex which is acute and extends a little beyond the tips of the tegmina; sides of the pronotum strongly, longitudinally ridged. Tegmina three-fourths covered by the overhanging sides of the pronotum; hyaline or slightly clouded; basal costal area punctate; five apical cells; one discoidal cell; apical limbus moderate. Legs simple; hind tarsi longest.

Type *cucullatus* Fowler.

Geographical distribution : The genus is at present limited to Mexico and Central America with the following species :

1. *affinis* Fowler, B. C. A. II : 129. 2 (1896).	Mexico.
2. *cucullatus* Fowler, B. C. A II 128. 1 (1896). — **Pl. 6, fig. 74.**	Guatemala.
3. *flavocostatus* Haviland, Zoologica VI : 3. 255 (1925).	British Guiana.
4. *scaphiformis* Fowler. B. C A. II : 129. 3 (1896).	Guatemala.
5. *viridis* Plummer, Ann. Ent Soc. Amer. XXIV : 4. 688 (1936).	Mexico.

87. Genus ECUADORIA Goding

Ecuadoria Goding, Memb. Ecuad. 36 (1920).
Ecuatoriana Goding, Ent. News XXVI : 5. 136 (1920).

Characters : A very distinctive genus at once recognized by the two large rounded elevations, one behind the other, on the dorsum. Head triangular, roughly sculptured; greatly extended downward; base strongly sinuate; eyes subtriangular; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; clypeus very broad and blunt, extending for half its length below inferior margins of genæ, its lateral margins continuing the facial line made by the genæ. Pronotum convex with two large rounded dorsal lobes, one behind the other and deeply notched between; metopidium sloping, wider than high; median carina strongly percurrent; humeral angles extended into broad, triangular projections, flattened dorso-ventrally and extended directly outward; sides of pronotum decorated with heavy raised longitudinal ridges and dorsal lobes irregularly ridged; posterior apex of pronotum gradually acuminate and extending just about to the tips of the tegmina. Tegmina about one-half exposed; hyaline ; basal costal area strongly punctate; five apical cells; one discoidal cell; median apical cell triangular and petiolate; apical limbus broad. Legs simple, cylindrical; posterior tarsi longer than the others.

Type *bactriana* Goding.

Geographical distribution : A South American genus with two described species as follows :

1. *bactriana* Goding, Memb. Ecuad. 36 (1920). Ecuador.
2. *bicristata* Stål, Bid. Memb. Kan. 238. 3 (1869). — **Pl. 6, fig. 75.** Colombia.

88. Genus DIOCLOPHARA Kirkaldy

Dioclophara (nom. nov) Kirkaldy, Ent. XXXVII : 279 (1904).
Lucilla (preoccupied) Stål, Bid. Hem. Syst. 555 (1867).

Characters : Small elongate insects of inconspicuous colors and seed-like appearance with strongly ridged pronotum, very small dorsal horns, and tegmina half concealed. Head triangular; base weakly sinuate; eyes globular; ocelli small, a little nearer to each other than to the eyes and located about on an imaginary line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus short and blunt, extending for half its length below inferior margins of genæ and continuing the lateral line of the face made by these margins. Pronotum moderately elevated, tectiform, strongly longitudinally ridged; a weak, blunt dorsal horn, sometimes reduced to a mere angle, arising from just behind the humeral angles; dorsum gradually sloping from tip of horn or angle to the posterior apex of the pronotum which is very sharp and just about reaches the tips of the tegmina. Tegmina about half exposed; basal costal half strongly punctate and semicoriaceous, apical half hyaline; five apical cells; one discoidal cell; median apical cell triangular and petiolate; apical limbus broad. Legs simple, subcylindrical; hind tarsi longest.

Type *viridula* Fairmaire

Geographical distribution : A strictly South American genus, thus far definitely reported only from Ecuador and Colombia

1. *cornigera* Stål, Bid. Memb. Kan. 239. 4 (1869). Colombia.

2. *intermedia* Fowler, Trans. Ent. Soc. Lond. 421 (1894). Ecuador.
3. *mixta* Stål, Bid. Memb. Kan. 239. 3 (1869). Colombia.
4. *parvula* Fabricius, Syst. Rhyng. 32. 22 (1803). South America.
5. *subcristata* Stål, Bid. Memb. Kan. 238. 2 (1869). Colombia.
6. *viridula* Fairmaire, Rev. Memb. 305. 13 (1846). — **Pl. 6, fig. 76.** Colombia.

89. Genus Hille Stål

Hille Stål, Bid. Hem. Syst. 555 (1867).

Characters : This genus is in considerable confusion due to the difficulty of delimiting it from Fairmaire's old genus *Oxygonia* (now *Gelastogonia*) in which a number of its species were originally placed. Goding (1929) has suggested that the difference in the structure of the dorsal crest is a sufficient character upon which to distinguish the two genera and from material which we have been able to study, this seems satisfactory. On this basis, the characters of *Hille* may be given as follows : Medium sized insects of triangular shape as seen from the side, with dorsal horn arising from behind the humeral angles, the margins of this horn being declivous or sloping, the posterior apex of the pronotum long, sharp and reaching the tips of the tegmina, and the tegmina about half exposed. Head broadly triangular; base arcuate and strongly sinuate; eyes globular and protruding; ocelli conspicuous, a little nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ straight; clypeus extending for half its length below inferior margins of genæ and continuing, with its lateral edges, the facial line made by the margins of the genæ. Pronotum elevated, convex, with a single strong, sharp dorsal horn arising from behind the line of the humeral angles, the posterior margin of the horn declivous or sloping, never rounded or showing a distinct step; metopidium convex, wider than high; hnmeral angles well produced into large, flat, auriculate, blunt, triangular processes which project laterad and are flattened dorso-ventrally; median carina strongly percurrent; sides of pronotum bearing strong longitudinal ridges; posterior apex of pronotum gradually acuminate and reaching just about to the tips of the tegmina. Tegmina about half exposed; basal half strongly and densely punctate, apical half hyaline; five apical cells; one discoidal cell; median apical cell petiolate; apical limbus broad. Legs simple, subcylindrical; hind tarsi slightly longer than the others.

Type *maculicornis* Fairmaire.

Geographical distribution : The following species of this genus, if they have been correctly assigned, are very abundant throughout wide areas in South and Central America.

1. *conica* Fairmaire, Rev. Memb. 302. 3 (1846). Colombia, Brazil, Venezuela.
   reticulata Walker, List Hom. B. M. 523. 15 (1851).
   nutans Stål, Bid. Memb. Kan. 236. 5 (1869).
   sulphurea Butler, Cist. Ent. II : 206. 7 (1877).
   acuminata Buckton, Mon. Memb. 187 (1903).
2. *dorsalis* Fairmaire, Rev. Memb. 303. 5 (1846). Colombia, Ecuador, Brazil.
   venosa Walker, List Hom. B. M. 523. 14 (1851).
   conspersa Stål, Bid. Memb. Kan. 236. 3 (1869).
   notata Buckton, Mon. Memb. 220. 36 (1903).
3. *ecuadorensis* Fowler, Trans. Ent. Soc. Lond. 420 (1894). Ecuador.
4. *herbicola* Haviland, Zoologica VI : 3. 255 (1925). British Guiana.
5. *maculicornis* Fairmaire, Rev. Memb. 303. 6 (1846). Colombia.
6. *pacifica* Fairmaire, Rev. Memb. 302. 4 (1846). Brazil, Panama, Guatemala.

7. *perfecta* Walker, List Hom. B. M. Suppl. 139 (1858). Ecuador, Venezuela.

8. *sobria* Walker, List Hom. B. M. 523. 13 (1851). — **Pl. 6, fig. 77.** Ecuador, Brazil.

9. *sobrina* Stål, Rio Jan. Hem. II : 28. 1 (1862). Brazil, Ecuador.

90. Genus GELASTOGONIA Kirkaldy

Gelastogonia (nom. nov.) Kirkaldy, Ent. XXXVII : 279 (1904).
Oxygonia (preoccupied) Fairmaire, Rev. Memb. 301 (1846).
Ennya Stål, Ber. Ent. Zeit X : 387 (1866).

Characters : Medium to large sized insects often brightly colored and distinguished from those belonging to closely related genera by the convex or step-shaped posterior margin of the dorsal process. Head triangular; base strongly sinuate; eyes large, ovate; ocelli prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for more than half its length below inferior margins of genæ and continuing the line of these margins to form the triangular outline of the face. Pronotum elevated, tectiform, and bearing a dorsal crest which arises from behind the humeral angles and while varying in shape and structure usually consists of a sharp point in front and always shows either a convex protuberance or a step-like posterior margin, or both, behind. Metopidium convex, wider than high; humeral angles strongly produced into broad, flattened, triangular, blunt processes; median carina strongly percurrent; posterior apex of pronotum gradually acuminate and reaching just about to the tips of the tegmina; sides of pronotum bearing strong, heavy, longitudinal ridges. Tegmina about half exposed; basal costal area strongly punctate and coriaceous; apical half hyaline or colored but not coriaceous; five apical cells; one discoidal cell; median apical cell triangular and stylate; apical limbus moderate. Legs simple, subcylindrical; hind tarsi somewhat longer than the others.

Type *rufipes* Fairmaire.

Geographical distribution : A Central and South American genus, widely distributed, and, so far as individuals of some of the species are concerned, very abundant in many localities.

1. *chlorizans* Breddin, Soc. Ent. XVI : 23. 177 (1902). Ecuador.

2. *chrysura* Fairmaire, Rev. Memb. 303. 2 (1846). — **Pl. 6, fig. 78.** Colombia, Venezuela, Ecuador, Panama.
   auriflua Walker, List Hom. B. M. 550. 2 (1851).

3. *erythropus* Burmeister, Handb. Ent. II : 139. 2 (1835). Brazil, Ecuador.
   atroaptera Fairmaire, Rev. Memb. 304. 10 (1846).
   insoleta Walker, Ins. Saund. 109 (1858).
   costigera Butler, Cist. Ent. II : 353 (1878).

4. *exaltata* Walker, List Hom. B. M. Suppl. 140 (1858). Brazil.
   patruelis Stål, Rio Jan. Hem. II : 29 3 (1862).

5. *fairmairei* Breddin, Soc. Ent. XVI : 23. 177 (1902). Ecuador.

6 *fasciata* Fallou, Rev. Ent. IX : 353 (1890). Ecuador.

7. *funkhouseri* Goding, Bull. Brook. Ent. Soc. XXIII : 138 (1928). Ecuador.

8 *gibbera* Goding, Amer. Mus. Novit. 20 (1930). Ecuador.

9. *gournelli* Fallou, Rev. Ent. IX : 353 (1890). Brazil.

10. *hirsuta* Haviland, Zoologica VI : 3. 256 (1925). British Guiana.

11. *lineosa* Walker, Journ. Ent. I : 5. 318 (1862). South America.

12. *nebulosa* Breddin, Soc. Ent. XVI : 23. 177 (1902). Ecuador.

13. *pulchella* Funkhouser, Can. Ent. XLVI : 403. 7 (1914).	Peru.
14. *rufipes* Fairmaire, Rev. Memb. 301. 1 (1846).	Colombia.
15. *rufiventris* Germar, Mag. Ent. IV : 14. 8 (1821). *altifrons* Walker, List Hom. B. M. 553. 19 (1851).	Brazil.
16. *rufomaculata* Fallou, Rev. Ent. IX : 353 (1890)	Ecuador.
17. *signata* Germar, Mag. Ent. IV : 15. 9 (1821).	Brazil.

91. Genus HERANICE Stål

Heranice Stål, Bid. Hem. Syst. 554 (1867).

Characters : Large, brightly colored insects with the convex pronotum gradually arcuate and suggesting the bottom of an inverted boat, without horns or other processes and with the tegmina about half exposed. Head triangular, roughly sculptured; base arcuate and strongly sinuate; eyes ovate and protruding; ocelli very large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ roundly curved; clypeus with a distinct central ridge, extending for half its length below inferior margins of genæ. Pronotum convex, moderately elevated, gradually keeled, highest in the middle; metopidium convex, twice as broad as high; humeral angles strongly produced into heavy, blunt, triangular lobes, extending laterad as far as half the width of the head; median carina strongly percurrent; sides of pronotum with many prominent longitudinal ridges; posterior apex of pronotum heavy, acute, just reaching the tips of the tegmina. Tegmina about half covered by the overhanging sides of the pronotum; basal half strongly punctate, apical half hyaline or clouded; five apical and two discoidal cells; median apical cell triangular and petiolate; apical limbus broad. Legs simple, cylindrical, heavy; hind tarsi much longer than either of the other two pairs.

Type *miltoglypta* Fairmaire.

Geographical distribution : The only two species thus far described are from South America.

1. *miltoglypta* Fairmaire, Rev. Memb. 306. 2 (1846). — **Pl. 6, fig. 79.**	Colombia, Ecuador, Peru.
2. *planeflava* Fairmaire, Rev. Memb. 306. 3 (1846).	Brazil.

92. Genus MATURNA Stål

Maturna Stål, Bid. Hem. Syst. 555 (1867).

Characters : Closely related to the preceding genus but immediately distinguished by the much smaller size of the insects, their inconspicuous colors, and particularly by the single discoidal cell of the corium. Stål, in differentiating these genera, calls attention, also, to the facts that in *Maturna* it is more compressed and is slightly sinuate before the middle, and that the humeral angles are less strongly produced than in *Heranice*. All of the above are good, constant characters and in our opinion are entirely sufficient to validify the genus. In addition it may be noted that in *Maturna* the head is much more pointed and produced downward; the ridges on the sides of the pronotum are much farther apart; the posterior apex of the pronotum is usually depressed; and the basal area of the tegmina more heavily punctate and coriaceous than in *Heranice*. The other characters are about the same for the two genera.

Type *ephippigera* Fairmaire.

Geographical distribution : The four species known in this genus are all from Colombia, South America.

1. *ephippigera* Fairmaire, Rev. Memb. 311. 20 (1846). Colombia.
   varia Walker, List Hom. B. M. 555. 5 (1851).
2. *lloydi* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 4. 280 (1914). Colombia.
3. *maculata* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 417 (1930). Colombia.
4. *parvula* Fabricius, Syst. Rhyng. 32. 22 (1803) — **Pl. 6, fig. 80.**

93. Genus MEMBRACIDOIDEA Goding

Membracidoidea Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 173 (1929).

Characters : We have never seen the single species which represents this genus and can therefore do no more than to quote Goding's original description as follows:

« Head nearly long as broad, wide as base posterior pronotal process, uneven, median carina from base to middle, fovea at base and one at apex clypeus; base well arched; ocelli equidistant, even with center of eyes; lateral margins rounded to apex clypeus. Pronotum highly elevated anteriorly, almost foliaceous, subcompressed, superficially resembling some species of the genus *Membracis*; metopidium vertical, summit slightly advancing and briefly rounded, dorsum unevenly curved to posterior apex which reaches tips of tegmina; sides with several rugæ and covers half the tegmina; humerals prominent, conical. Tegmina two and one-half times longer than broad, 3 parallel longitudinal veins on the exterior half of tegmina, space between subcoriaceous, opaque, densely punctate to bases apical cells; no discoidal cell, 5 apical cells, base third cell petiolate, the fifth cell with anterior basal cell and clavus occupying more than half the width of tegmina; costal and anterior margins nearly straight, posterior margin obliquely truncate, apical angle acutely pointed, limbus rather broad toward interior angle, wings with 4 apical cells, base second cell petiolate. Legs simple. »

It is evident that Goding was impressed by the almost foliaceous appearance of his type species, a character which undoubtedly suggested his name for the genus.

Type *rubridorsa* Goding.

Geographical distribution : Known only from the type species from Costa Rica.

1. *rubridorsa* Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 174 (1929). Costa Rica.

GENERA OF TRIBE CERESINI GODING

I. *Pronotum with suprahumeral horns*
- A. *Posterior process not trispinose*
  - 1. *Posterior process compressed laterally, tectiform, base not swollen, apex acute*
    - a. *Pronotum elevated, strongly curved, not deeply impressed above lateral margins* . . . . CERESA Amyot and Serville.
    - aa. *Pronotum convex, nearly straight, deeply impressed above lateral angles* . . . . CENTROGONIA Stål.
  - 2. *Posterior process convex, not flattened bilaterally, base swollen, apex spinelike*
    - a. *Corium with 3 discoidal cells*. . . . . ANTONÆ Stål.
    - aa. *Corium with 4 discoidal cells* . . . . ILITHUCTA Stål.

B. *Posterior process nodose and trispinose*

1. *Suprahumerals short, heavy, thick and blunt.* . . . . XOLONIA Plummer.

2. *Suprahumerals long, slender, sharp and spine-like*

a. *Posterior process with two slender upright spines at base* . . . CYPHONIA Laporte.

aa. *Posterior process without erect spines at base* . . . . POPPEA Stål.

II. *Pronotum without suprahumeral horns*

A. *Corium with five apical and two or more discoidal cells*

1. *Posterior process nodose and trispinose.* . . . . CLEPSYDRIUS Fowler.

2. *Posterior process not trispinose*

a. *Posterior process greatly swollen at or near base.* . . . . . . PARANTONÆ Fowler.

aa. *Posterior process not inflated near base*

b. *Pronotum convex, impressed above lateral margin* . . . . MELUSINA Stål.

bb. *Pronotum elevated, not deeply laterally impressed*

c. *Lateral margins of metopidium angulate; dorsum highest in front* . . . . STICTOCEPHALA Stål.

cc. *Lateral margins of metopidium rounded; dorsum highest at middle* . . . . STICTOLOBUS Metcalf.

B. *Corium with four apical cells and one discoidal cell* . . . . TRACHYTALIS Fowler.

94. GENUS CERESA AMYOT AND SERVILLE

Ceresa Amyot and Serville, Hémip. 539 (1843).

Characters : The genus *Ceresa* is the largest, the best known and the most widely distributed of any of the genera of Membracidæ in the New World. It is represented in all parts of both continents by many species and by an enormous number of individuals. In popular treatises on entomology and in elementary text-books, some species of this genus is usually chosen to illustrate the family. In fact, in the literature, the species *Ceresa bubalus* is mentioned more times than any other membracid species in the World.

The genus is characterized by the petiolate median apical cell of the hind wing, the entirely free tegmina with two contiguous longitudinal veins, the well elevated pronotum without longitudinal ridges or deep impressions on the sides, with suprahumeral horns, and with a simple, tectiform, gradually acute posterior process. The head is subquadrate wider than long, with the apex triangular; base strongly arcuate; eyes globular; ocelli prominent, nearer to each other than to the eyes and situated a little below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus variable but usually extending for about half its length below the inferior margins of genæ. Pronotum well developed and elevated, roughly triangular as seen from above; metopidium vertical or convex and about as wide as high; median carina present; humeral angles weak; suprahumeral horns always present but varying greatly in size from large strong processes to mere tubercular angles; posterior apex of pronotum always simple, without spines or other processes and gradually acute, generally reaching to a point somewhere between the internal angles and the tips of the tegmina; sides of pronotum punctate and often with faint impressions but never ridged. Tegmina entirely free and the corium fully exposed; five apical and three discoidal cells; apical limbus broad. Legs simple.

Type *vitulus* Fabricius.

Geographical distribution : This genus is distributed throughout all parts of both American continents and ranges as far north and as far south as any other membracid genus. As in the case of other widely distributed American genera, we have attempted to indicate distribution within certain broad regions and occasionally, for species of limited range, according to states in the United States. The terms « United States » or « Canada » or « Mexico », however, indicate that the species is so cosmopolitan that it may be found in practically all parts of the countries so mentioned.

1. *aculeata* Fairmaire, Rev. Memb. 283. 2 (1846). — Bolivia.
2. *affinis* Fairmaire, Rev. Memb. 284. 3 (1846). — Brazil.
3. *albescens* Van Duzee, Stud. N. A. Memb. 35. 2 (1908). — Ontario, eastern and central U. S.
4. *albidosparsa* Stål, Eug. Resa Omk. Hem. 283 (1859). — West. U. S., west. Canada.
5. *ancora* Ball, Journ. Wash. Acad. Sci. XXVII : 11. 479 (1937). — Arizona.
6. *axillaris* Germar, Rev. Silb. III : 235. 8 (1835). — Brazil, Colombia.
   terminata Fairmaire, Rev. Memb. 285. 16 (1846).
7. *basalis* Walker, List Hom. B. M. 527. 12 (1851). — Canada, United States.
   brevicornis Provancher, Pet. Faun. Can. III : 235 (1889).
   semicrema Provancher, Pet. Faun. Can. III : 235 (1889).
   melanogaster Osborn, Bull. Nat. Sci. Iowa II : 390 (1893).
   turbida Goding, Cat. Memb. N. A. 406. 44 (1894).
   semibrunnea Buckton, Mon. Memb. 174 (1903).
8. *bifasciata* Fairmaire, Rev. Memb. 286. 13 (1846). — Brazil, Colombia, Peru.
9. *borealis* Fairmaire, Rev. Memb. 284. 5 (1846). — Ontario, east. and centr. U.S.
10. *brevicornis* Fitch, Trans. Agr. Soc. N. Y. 451. 177 (1856). — Eastern Canada, eastern and central U. S.
11. *brevis* Walker, List Hom. B. M. 528. 13 (1851). — Eastern, centr. and south. U.S.
12. *brevitylus* Van Duzee, Stud. N. A. Memb. 36. 4 (1908). — Eastern and southern U. S.
13. *brunnicornis* Germar, Rev. Silb. III : 235. 7 (1835). — Argentina.
14. *bubalus* Fabricius, Ent. Syst. IV : 14. 23 (1794). — **Pl. 7, fig. 81.** — Canada, United States.
15. *colon* Germar, Rev. Silb. III : 237. 11 (1835). — Brazil.
16. *concinna* Fowler, B. C. A. II : 106. 9 (1895). — Mexico.
17. *constans* Walker, List Hom. B. M 563. 27 (1851). — Eastern Canada, eastern and southern U. S.
18. *cuprea* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 16 (1927). — Brazil, Panama.
   nigra Goding, Bull. Brook. Ent. Soc. XXIII : 137 (1928).
19. *diceros* Say, Narr. Long's Exp. App. 299 (1824). — Canada, United States.
   postfasciata Amyot and Serville, Hémip. 540 (1843).
20. *discolor* Fairmaire, Rev. Memb. 286. 12 (1846). — Brazil.
21. *extensa* Walker, Ins. Saund. 68 (1858). — Colombia, Argentina, Uruguay.
   pauperata Berg, Ann. Soc. Cien. Arg. XVI : 287 (1833).
22. *fastidiosa* Fairmaire, Rev. Memb. 281. 6 (1846). — Colombia.
23. *femorata* Fairmaire, Rev. Memb. 289. 24 (1846). — Mexico, southern and western U. S.
   tacta Walker, List Hom. B. M. 560. 15 (1851).
   angulata Walker, List Hom. B. M. 558. 10 (1851).
   rotundata Van Duzee, Check List 59. 1593 (1917).
24. *illinoiensis* Goding, Cat. Memb. N. A. 404. 32 (1894). — Central and southern U. S.
25. *infantilis* Ball, Journ. Wash. Acad. Sci. XXVII : 11. 479 (1937). — Mexico.
26. *insignis* Walker, Ins. Saund. 67 (1858). — Mexico.

27. *integra* Walker, Ins. Saund. 67 (1858). — Brazil.

28. *jugifera* Stoll, Cigal. 36 (1788). — Surinam.

29. *malina* Germar, Rev. Silb. III : 236. 9 (1835). — Argentina.

30. *mexicana* Plummer, Memb. Mex. 373 (1935). — Mexico.

31. *militaris* Gibson and Wells, Bull. Brook. Ent. Soc. XII : 5. 112 (1917). — Central U. S.

32. *nigricornis* Fowler, B. C. A. II : 104. 3 (1895). — Mexico.

33. *nigrovittata* Fowler, B. C. A. II : 104. 4 (1895). — Guatemala.

34. *nitens* Buckton, Trans. Linn. Soc. Zool. II : 332 (1905). — Panama.

35. *palmeri* Van Duzee, Can. Ent. XL : 114 (1908). — Eastern Canada, eastern, central and southern U. S.

36. *patruelis* Stål, Hem. Mex. 69. 420 (1864). — Mexico, southern U. S.

37. *projecta* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 161 (1927). — Argentina.

38. *puncticeps* Stål, Hem. Mex. 70. 422 (1864). — Mexico.

39. *recta* Walker, Ins. Saund. 68 (1858). — Brazil, Peru.

40. *robusta* Butler, Cist. Ent. II : 216. 15 (1878). — Brazil.

41. *sallei* Stål, Hem. Mex. 70. 421 (1864). — Mexico, Brazil, Bolivia.

42. *stimulea* (nom. nov.) Van Duzee, Can. Ent. XLVI : 11. 388 (1914). — Florida.
   aculeata (preoccupied) Van Duzee, Flor. Hem. 205 (1909).

43. *taurina* Fitch, Rept. Ins. N. Y. III : 335 (1856). — Canada, United States.

44. *testacea* Fairmaire, Rev. Memb. 284. 4 (1846). — Mexico, Yucatan, Guatemala, Costa Rica, Panama, Brazil, Ecuador, Uruguay, Peru. Colombia.
   alta Walker, List Hom. B. M. 529. 15 (1851).
   cavicornis Stål, Freg. Eus. Resa. Ins. 254 (1859).
   stalii Goding, Cat. Memb. N. A, 406. 43 (1894).

45. *uncicornis* Fowler, B. C. A. II : 104. 5 (1895). — Panama.

46. *uruguayensis* Berg, Ann. Soc. Cien. Arg. XVI : 286 (1883). — Uruguay.

47. *ustulata* Fairmaire, Rev. Memb. 285. 7 (1846). — Brazil, Colombia, Peru, Argentina.
   plana Walker, List Hom. B. M. 529. 16 (1851)

48. *vacca* Fowler, B. C. A. II : 106. 8 (1895). — Mexico.

49. *variabilis* Fowler, B. C. A. II : 105. 6 (1895). — Panama.
   intermedia Fowler, B C. A. II : 105. 6 (1895).

50. *vitulus* Fabricius, Syst. Ent. 677. 10 (1775). — Brazil, Colombia, Peru, Ecuador, Mexico, Guatemala, Costa Rica, Panama, Yucatan, British Guiana.
   pallens Germar, Mag. Ent. III : 25. 26 (1820).
   spinifera Fairmaire, Rev. Memb. 254. 6 (1846).
   curvilinea Walker, List Hom. B. M. Suppl. 132 (1858).
   rufescens Butler, Cist. Ent. II : 218. 26 (1878).
   distans Butler, Cist. Ent. II : 218. 25 (1878).
   minor Fowler, B. C. A. II : 103 (1895).

95. Genus CENTROGONIA Stål

Centrogonia Stål, Hem. Fabr. II : 24 (1869).

Characters : Insects which resemble those of the genus *Ceresa* but differ in being more slender and narrow-bodied, in having the dorsum convex and nearly straight, and in being deeply impressed above the lateral margins behind the horns. Head subquadrate, twice as broad as high, very roughly sculptured; base arcuate and sinuate; eyes globular and protruding; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior

margins of genæ rounded; clypeus extending for more than half its length below inferior margins of genæ. Pronotum low, convex, dorsum straight or slightly sinuate; suprahumeral horns variable in length but always present and usually conical and sharp; humeral angles weak and blunt; metopidium vertical or convex, about as broad as high; median carina percurrent; sides of pronotum deeply impressed in semicircular indentations above the lateral margins behind the suprahumerals; posterior apex of pronotum gradually acuminate and generally extending to a point somewhere between the internal angles and the tips of the tegmina. Tegmina entirely free, corium fully exposed; venation heavy and conspicuous; five apical and three discoidal cells; apical limbus broad. Legs simple.

Type *ciliata* Fairmaire.

Geographical distribution : Species of this genus have been recorded only from Central and South America as follows :

1. *centrotoides* Walker, List Hom. B. M. Suppl. 138 (1858).	Brazil, Ecuador.
2. *ciliata* Fairmaire, Rev. Memb. 287. 17 (1846). — **Pl. 7, fig. 82.**	Colombia, Venezuela.
3. *elegans* Fowler, B. C. A. II : 107. 1 (1894).	Panama, Brazil.
4. *flavolimbata* Goding, Memb. Ecuad. 32. 35 (1920).	Ecuador.
5. *lutea* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 269 (1919).	Colombia.
6. *nasuta* Stål, Eug. Res. Omk. Hem. 283 (1859).	Brazil.
7. *pinguicornis* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 270 (1919).	Peru, Ecuador.
8. *speciosa* Goding, Amer. Mus. Novit. 18 (1930).	Brazil.
9. *unguicularis* Stål, Rio Jan. Hem. 26. 3 (1858).	Brazil.

96. GENUS ANTONÆ STÅL

Antonæ Stål, Bid. Hem. Syst. 552 (1867).
Tumayana Schmidt, Stet. Ent. Zeit. LXVII : 368 (1906).

Characters : A genus characterized by the heavy, rounded, bulbous swellings at the base of the posterior process and the very slender spine-like apex to this process. Head subquadrangular, broader than high, roughly sculptured; base strongly arcuate and weakly sinuate; eyes globular and protruding; ocelli large, prominent, equidistant from each other and from the eyes and situated a little below a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus projecting for at least half its length below inferior margins of genæ. Pronotum convex, not highly elevated nor laterally compressed; suprahumeral horns varying in size and length but always well developed; humeral angles weak and rounded; metopidium vertical, usually a little higher than broad; median carina percurrent; sides of pronotum deeply impressed above lateral margins behind the horns; dorsum sinuate; base of posterior process swollen into bulbous nodes; apex of posterior process long, slender, sharp, and extending beyond the internal angles of the tegmina but not reaching their tips. Tegmina entirely free, corium fully exposed; veins strong and heavy; cells large; five apical and three discoidal cells; apical limbus broad especially on the anal margin. Legs simple; hind tarsi much the longest.

Type *tigrina* Fairmaire.

Geographical distribution : A genus represented by only a moderate number of species but with enormous numbers of individuals in South America, Central America and Mexico.

1. *aurantiaca* Fairmaire, Rev. Memb. 288 (1846).	Colombia.

2. *bulbosa* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 415 (1930).	Mexico.
3. *conspersa* Stål. Bid. Memb. Kan. 244. 5 (1869).	Colombia.
4. *evelyna* Plummer, Memb. Mex. 376 (1935).	Mexico.
5. *flaccida* Fairmaire, Rev. Memb. 288. 19 (1846).	Colombia.
6. *guttipes* Walker, List Hom. B. M. Suppl. 157 (1858). *eva* Schmidt, Stet. Ent. Zeit. LXVII : 368 (1906).	Peru, Ecuador, Brazil.
7. *incrassata* Fairmaire, Rev. Memb. 288. 20 (1846). — **Pl. 7, fig. 83.**	Colombia.
8. *inflata* Stål, Bid. Memb. Kan. 243. 1 (1869).	Colombia, Venezuela.
9. *nigropunctata* Goding, Journ. N. Y. Ent. Soc. XXXVII : 173 (1929).	Costa Rica.
10. *nodosa* Funkhouser, Can. Ent. XLIV : 403. 8 (1914).	Bolivia.
11. *picina* Stål, Bid. Memb. Kan. 243. 3 (1869).	Colombia, Brazil.
12. *tigrina* Fairmaire, Rev. Memb. 287. 17 (1846).	Colombia, Venezuela.

97. Genus ILITHUCIA Stål

Ilithucia Stål, Bid. Hem. Syst. 552 (1867).
Electrophina Buckton, Trans. Linn. Soc. Zool. IX : 331 (1905).

Characters : This genus was erected by its author to accommodate Fairmaire's species *morio* and separated from the preceding genus by the simple notation : « Parte anteriore tumida processus thoracis dorso haud sinuate; corio areolis discoidalis quatuor ». In the preceding paragraph of his table, Stål described *Antonæ* as having a strongly sinuate dorsum and three discoidal cells in the corium. We have never seen a specimen of *I. morio* but Fairmaire's description of the species indicates that it is a large brown and yellow insect with the sides of the pronotum deeply impressed, strong recurved suprahumeral horns and free tegmina.

Goding (1929a) believes that Buckton's *Electrophina pacificata* belongs to this genus and we are willing to accept his judgment, although how he was able to be positive in this matter from Buckton's figure and description is beyond our comprehension.

I. morio has been mentioned only five times in the literature of the family, has not been redescribed since the original description, and has never been figured. Pending a better knowledge of this type species, we would conclude that *Ilithucia* should be recognized as a good genus and separated from *Antonæ* by the less sinuate dorsum and the four discoidal cells of the tegmina.

Type *morio* Fairmaire.

Geographical distribution : We are recognizing the two above mentioned species with the actual locality of *pacificata* questionable since Buckton locates it only by the expression « Coll. de Pacifico ».

1. *morio* Fairmaire, Rev. Memb. 287. 18 (1846).	Colombia.
2. *pacificata* Buckton, Trans. Linn. Soc. Zool. IX : 321 (1905).	Pacific Coast.

98. Genus XOLONIA Plummer

Xolonia Plummer, Journ. N. Y. Ent. Soc. XLIII : 4. 377 (1935).

Characters : Plummer correctly places this genus as standing between *Antonæ* and *Clepsydrius*. It differs from both in the very short, blunt suprahumerals and in the structure of the bulbous expan-

sions of the dorsum. Head subquadrate, much broader than long, smooth; base weakly and regularly arcuate; eyes globular and protruding; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for two-thirds its length below inferior margins of genæ. Pronotum irregularly convex and very bulbous; suprahumeral horns very short, swollen and blunt; a large median dorsal swelling just behind suprahumerals; sides of pronotum strongly impressed above lateral margins; posterior process consisting of a large, trilobed swelling, each bulbous lobe of the swelling ending in a sharp spine. Tegmina hyaline and entirely exposed; cells irregular in shape; five apical and three discoidal cells; apical limbus broad. Hind wings with four apical cells. Legs simple; hind tarsi much longer than the others.

Type *variegata* Plummer.

Geographical distribution : Known only from the type species from Mexico.

1. *variegata* Plummer, Memb. Mex. 378 (1935). — **Pl. 7, fig. 84.** — Mexico.

99. GENUS CYPHONIA LAPORTE

Cyphonia Laporte, Ann. Ent. Soc. France I : 229 (1832).

Characters : A genus of very remarkable and bizarre insects characterized by the long slender suprahumerals, the trispinose and often bulbous posterior process and particularly by two slender upright spines at the base of the posterior process. The insects are not large but are often brightly colored. Head triangular, roughly sculptured; base straight; eyes globular and protruding; ocelli conspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for at least half its length below inferior margins of genæ. Pronotum nodulate and spinose; suprahumeral horns slender and spine-like; anterior portion of pronotum convex; sides of pronotum deeply impressed above lateral margins; metopidium convex, as broad as high; humeral angles weak, triangular, blunt; median carina usually obsolete; posterior process always trispinose and often bulbous, the swellings generally at the base of the spines; two erect spines, side by side, at the base of the posterior process. Tegmina hyaline; cells irregular in shape; five apical and two discoidal cells; apical limbus very broad, particularly at the anal margin. Hind wings often rudimentary. Legs simple; hind tarsi about twice as long as the others.

Type *trifida* Fabricius.

Geographical distribution : Widely distributed throughout South America, Central America and Mexico but not reported north of Mexico.

1. *ancoralis* Berg, Ann. Soc. Cien. Arg. XVI : 285 (1883). — Argentina, Brazil.
2. *bonærensis* Berg, Ann. Soc. Cien. Arg. XVI : 240 (1883). — Argentina.
3. *braccata* Germar, Rev. Silb. III : 254. 1 (1835). — Brazil, Colombia.
4. *capra* Burmeister, Rev. Silb. I : 231. 22 (1833). — Brazil, Colombia, Venezuela.
5. *clavata* Fabricius, Mant. Ins. II : 264. 17 (1878). — Brazil, Surinam, Panama, Nicaragua, Guatemala, Mexico, British Guiana.
   bulbifera Germar, Mag. Ent. IV : 30. 40 (1821).
   hispida Walker, List Hom. B. M. Suppl. 156 (1858).
6. *clavigera* Fabricius, Syst. Rhyng. II : 17. 5 (1803). — Brazil, Uruguay, Patagonia, Chile, Argentina.
   colenophora Berg, Ann. Soc. Cien. Arg. 239 (1883).
7. *fasciata* Butler, Cist. Ent. II : 214 15 (1878). — Brazil.

8. *flava* Burmeister, Rev. Silb. I : 231. 11 (1833). — Brazil, Colombia, Venezuela.
9. *flavovittata* Stål, Bid. Memb. Kan. 242. 2 (1869). — Colombia, Brazil, Ecuador, Peru, Argentina.
10. *formosa* Butler, Cist. Ent. II : 214 (1878). — Mexico.
11. *furcata* Burmeister, Rev. Silb. I : 231. 10 (1883). — Brazil.
12. *furcifer* Laporte, Ann. Ent. Soc. France I : 230 (1832). — Brazil.
13. *fuscata* Buckton, Mon. Memb. 165 (1903). — Brazil, Peru.
14. *hirta* Germar, Rev. Silb. III : 255. 2 (1835). — Brazil, Guatemala, Mexico.
15. *jugalis* Buckton, Mon. Memb. 165 (1903). — Brazil, Peru.
16. *nasalis* Stål, Rio Jan. Hem. II : 34. 6 (1858). — Brazil, Colombia, Venezuela, British Guiana.
    furcispina Lethierry, Ann. Soc. Ent. Fr. VI : 155. 53 (1890).
17. *proxima* Guerin, Ic. Reg. Anim. Ins. 365 (1838). — Brazil, Peru, Yucatan, Mexico.
18. *saturalis* Berg, Ann. Soc. Cien. Arg. XVI : 285 (1883). — Argentina.
19. *trifida* Fabricius, Syst. Ent. IV : 12. 19 (1775). — **Pl. 7, fig. 85.** — Brazil, Colombia, Bolivia, Peru.
    ornata Laporte, Ann. Soc. Ent. Fr I : 230 (1832).

100. Genus POPPEA Stål

Poppea Stål, Bid. Hem. Syst. 551 (1867).

Characters : Closely related to the preceding genus but the insects average larger in size and differ in having much stronger suprahumeral horns and in lacking the two upright spines at the base of the posterior process. Head subquadrate, twice as broad as long, usually smooth and shining; base feebly arcuate; eyes very large, globular and protruding; ocelli conspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate and flanged; clypeus extending for half its length below inferior margins of genæ. Pronotum bulbous and spinose; anterior portion convex; suprahumeral horns sharp and generally more or less conical; metopidium convex, about as wide as high; median carina usually obsolete; humeral angles well developed, heavy, blunt, triangular; sides of pronotum deeply impressed at lateral margins; posterior process trispinose, the spines long and slender and sometimes swollen at their bases. Tegmina entirely free, corium fully exposed; cells large and irregular in shape; veins strong; five apical and three discoidal cells; median apical cell petiolate; apical limbus broad and usually wrinkled. Legs simple; hind tarsi longest.

Type *rectispina* Fairmaire.

Geographical distribution : This is primarily a Central American genus but a few species range northward into Mexico and a few others southward into northern South America.

1. *affinis* Fowler, B. C. A. II : 100 (1895). — Guatemala, Costa Rica.
2. *albiloba* Goding. Journ. N. Y. Ent. Soc. XXXVII : 2. 172 (1929). — Costa Rica.
3. *bulbidorsa* Goding, Amer. Mus. Novit. 17 (1930). — Peru.
4. *capricornis* Fowler, B. C. A. II : 99. 5 (1895). — **Pl. 7, fig. 86.** — Panama, Costa Rica.
5. *concinna* Fowler, B. C. A. II : 100. 6 (1895). — Panama.
6. *delicata* Plummer, Ann. Ent. Soc. Amer. XXIX : 4 (1936). — Mexico.
7. *discrepans* Goding, S. A. Memb. 254 (1929). — Peru.
8. *longicornis* Plummer, Memb. Mex. 375 (1935). — Mexico.

9. *munda* Fowler, B. C. A. II : 101. 8 (1895).	Panama.
10. *nitida* Funkhouser, Journ. N.Y. Ent. Soc. XXXVIII : 4. 416 (1930).	Peru.
11. *rectispina* Fairmaire, Rev. Memb. 502. 6 (1846).	Mexico, Guatemala, Yucatan, Honduras.
12. *reticulata* Fowler, B. C. A. II : 101. 9 (1895).	Guatemala.
13. *setosa* Fowler, B. C. A. II : 97. 1 (1895).	Mexico, Honduras.
14. *subrugosa* Fowler, B. C. A. II : 99. 3 (1895).	Guatemala, Peru.
15. *succinea* Buckton, Trans. Linn. Soc. Zool. IX : 331 (1905).	Mexico.
16. *torva* Fowler, B. C. A. II : 98. 2 (1895).	Guatemala.
17. *zebrina* Funkhouser, Journ. N.Y. Ent. Soc. XXXVIII : 4. 416 (1930).	Canal Zone.

101. GENUS CLEPSYDRIUS FOWLER

Clepsydrius Fowler, B. C. A. II : 95 (1895).

Characters : This genus is very closely related to *Xolania* from which it differs chiefly in the absence of suprahumeral horns. The type species, which is the only species known, is a small brown and yellow insect with a very bulbous pronotum and a trispinose and bulbous posterior process very similar to that seen in the two preceding genera. Head subquadrate, wider than long; base straight; eyes globular; ocelli large, prominent, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ broadly rounded; clypeus extending for at least half its length below inferior margins of genæ. Pronotum bulbous and spinose; no suprahumeral horns; humeral angles weak and rounded; metopidium sloping with the sides bluntly angular at the top; a distinct transverse groove across the metopidium above the humeral angles; median carina very faint; anterior portion of pronotum convex; sides of pronotum deeply impressed above the lateral margins so as to form a dorsal swelling above; posterior process broadly swollen at base into a bulbous lobe from which project three short, sharp, posterior spines. Tegmina entirely free; corium fully exposed; cells large and irregular in shape; veins prominent; five apical and three discoidal cells; median apical cell petiolate; first apical cell extending far along the costal margin; apical limbus broad and wrinkled. Hind wings with four apical cells, the second cell stylate. Legs simple; hind legs extremely long in proportion to the others and the hind tarsi about twice as long as those of the other legs.

Type *constrictus* Fowler.

Geographical distribution : Known only from the type species which, however, seems to be quite common in many parts of Mexico.

1. *constrictus* Fowler, B. C. A. II : 95. 1 (1895). — **Pl. 7, fig. 87.** Mexico.

102. GENUS PARANTONÆ FOWLER

Parantonæ Fowler, B. C. A. II : 101 (1895).

Characters : This is indeed a very strange-looking genus, as Fowler has remarked, and while it bears a superficial resemblance to *Antonæ*, a fact which doubtless suggested the generic name to its author, it differs from that genus in many important characters. The most distinctive features are the peculiar hood-shaped anterior pronotum and the deep constriction across the middle of the dorsum separating this anterior swelling from the strongly bulbous base of the posterior process. The head is sub-

quadrate, wider than long and very roughly sculptured; base feebly arcuate; eyes globular; ocelli large, prominent, located on elevated tubercles, a little nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus lightly trilobed and extending for more than half its length below inferior margins of genæ. Pronotum convex, strongly constricted in middle to form an anterior and a posterior dorsal swelling; the anterior portion is hood-like with a deep impression above the humeral angles and above the head; metopidium sloping; humeral angles strong, triangular; no suprahumeral horns; posterior half of pronotum greatly swollen and ending in a single, short, sharp spine. Tegmina entirely free; corium fully exposed; cells irregular in shape; veins strong; five apical and three discoidal cells; median apical cell petiolate; first apical cell extending down the costal margin; apical limbus broad. Legs simple; hind tarsi longest.

Type *dipteroides* Fowler.

Geographical distribution : According to the described species, this genus ranges from northern South America through Central America and Mexico to the western part of the United States, but the species must be quite rare as they are seldom seen in collections and have been mentioned only a few times in the literature of the family.

1. *binodosa* Goding, Trans. Amer. Ent. Soc. LII : 108 (1926).	Ecuador.
2. *dipteroides* Fowler, B. C. A. II : 102. 1 (1895). — **Pl. 7, fig. 88.**	Guatemala.
3. *hispida* Van Duzee, Trans. So. Dak. Soc. Nat. Hist. II : 1. 49 (1914).	California.
4. *ornata* Plummer, Memb. Mex. 377 (1935).	Mexico.

103. Genus MELUSINA Stål

Melusina Stål, Bid. Hem. Syst. 552 (1867).

Characters : Very near the following genus, *Stictocephala*, but with the dorsum low and convex and with a deep semicircular impression on each side of the pronotum. Head subquadrate, wider than long, roughly sculptured, apex triangular; base arcuate; eyes globular and protruding; ocelli conspicuous, slightly elevated, much nearer to each other than to the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus convex, extending for half its length below inferior margins of genæ. Pronotum low and convex, highest in front; no suprahumerals; metopidium vertical, wider than high; humeral angles strong, triangular, blunt; median carina very faint; sides of pronotum with a deep semicircular impression above margins; posterior process long, slender, acuminate, extending beyond internal angles of tegmina but not reaching their tips. Tegmina hyaline with five apical and three discoidal cells; apical limbus broad. Legs simple; hind tarsi much longer than the others.

Type *nervosa* Fairmaire.

Geographical distribution : A South American genus represented by the following four species :

1. *exaltata* Fabricius, Syst. Rhyng. 10. 22 (1803).	Brazil.
2. *nervosa* Fairmaire, Rev. Memb. 289. 22 (1846).	Brazil.
3. *nigriventris* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 272 (1919). — **Pl. 7, fig. 89.**	Ecuador, Colombia.
4. *rugifrons* Berg, Ann. Soc. Cien. Arg. XVI : 288 (1883).	Argentina.

104. GENUS STICTOCEPHALA STÅL

Stictocephala Stål, Hem. Fabr. II : 24 (1869).

Characters : In devising a dichotomous key for the identification of the genera of the tribe Ceresini, we naturally chose those characters which were most obvious and most easily noted, among which of course were the suprahumeral horns. As a result, however, the genus *Stictocephala* is thrown out of its natural position in the tribe, at least in so far as relationship and probable phylogeny is concerned, for certainly this genus is more nearly related to *Ceresa* than to any other genus in the family. Goding (1926) constructed a key for the tribe in which these two genera were thrown together, as they should be, but in other respects his table is not entirely satisfactory, and of course he is forced, also, as a final distinction, to base the separation of these two genera on the supposed presence or absence of suprahumerals. Stål (1869a) separated *Stictocephala* from *Ceresa*, to be sure, on the basis of the absence of suprahumerals, but this distinction is very artificial and unsatisfactory. In fact, we doubt if there are any good constant characters on which these two genera may be absolutely distinguished. The characters of the pronotum, other than the lateral angles of the metopidium, are the same; the shape and structure of the posterior process is identical; there is no difference in venation; and studies which we have made on the genitalia of the male and the abdominal segments of the female would indicate that there is no more variation in these structures in the two genera than there is between different species in either of the genera. The suprahumeral angles of the metopidium vary in both genera, some species of *Stictocephala* showing a distinct suggestion of a cornute protuberance and some species of *Ceresa* having the horns reduced to mere angular projections. Since, however, the genus has long been established on the basis of this character, we are here recognizing it on that basis.

The more typical species of *Stictocephala* are characterized by the elevated pronotum, highest in front and not deeply impressed on the sides, the angular lateral margins of the metopidium, the long, slender, simple posterior process, and the entirely exposed tegmina with five apical and three discoidal cells. Head triangular, base arcuate and sinuate; eyes narrow; ocelli prominent, equidistant from each other and from the eyes and situated somewhat below a line drawn through centers of eyes; inferior margins of genæ variable but usually rounded; clypeus variable but generally projecting somewhat below the inferior margins of genæ. Pronotum elevated highest in front, more or less triangular as viewed from above; metopidium high, lateral margins angulate; no distinct suprahumeral horns; humeral angles blunt; posterior process long, slender, tectiform, simple, usually depressed and decurved and impinging on margins of tegmina, extending beyond internal angles of tegmina but not reaching their tips. Tegmina free, usually hyaline, corium entirely exposed; five apical and three discoidal cells; apical limbus broad. Legs simple, subcylindrical; hind tarsi longest.

Type *lutea* Walker.

Geographical distribution : The center of distribution of this genus would appear to be the United States but species are found in South and Central America, in Mexico and in Canada. Like the genus *Ceresa*, it is quite cosmopolitan and has a wide range.

1. *collina* Van Duzee, Stud. N. A. Memb. 47. 8 (1908).	Western U. S.
2. *cornuta* Fowler, B. C. A. II : 110. 5 (1895).	Panama.
3. *diminuta* Van Duzee, Stud. N. A. Memb. 49. 11 (1908).	Southern U. S.
4. *elevata* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 271 (1919).	Peru.
5. *elongata* Fowler. B. C. A. II : 110. 4 (1895).	Mexico.

6. *festina* Say, Journ. Acad. Nat. Sci. Phila. VI : 243. 5 (1830). *rufivitta* Walker, List Hom. B. M. 559. 12 (1851). *dubia* Fowler, B. C. A, II : 109. 2 (1895). *angulata* Wildermuth, Journ. Agr. Research III : 343 (1915.)	Southern, central and western U. S., Cuba, Porto Rico, Canal Zone, Mexico.
7. *franciscana* Stål, Eug. Res. Omk. Jord. 284. 189 (1859).	West. U. S., west. Canada.
8. *fulgida* Ball, Journ. Wash. Acad. Sci. XXVII : 480 (1937).	Arizona.
9. *fusca* Fowler, B. C. A. II : 109. 3 (1895).	Mexico.
10. *gilletti* Goding, Ent. News III : 108. 200 (1892).	Western U. S.
11. *inermis* Fabricius, Syst. Ent. IV : 678. 1 (1775). — **Pl. 7, fig. 90.** *goniphora* Say, Journ. Acad. Nat. Sci. Phila. V : 243 (1831).	United States, Canada.
12. *lutea* Walker, List Hom. B. M. 559 (1851). *sanguino-apicalis* Goding, Cat. Memb, N. A. 408. 42 (1894).	United States, Canada.
13. *minuta* Funkhouser, Ent. News XXVI : 3. 99 (1915).	Southern U. S.
14. *nervosa* Buckton, Mon. Memb. 196 (1903).	Northeastern U. S.
15. *nigricans* Van Duzee, Trans. S. D. Soc. Nat. Hist. II: 49. 272 (1914).	California.
16. *pacifica* Van Duzee, Stud. N. A. Memb. 44. 2 (1908).	West. U. S., west. Canada.
17. *rotundata* Stål, Bid. Memb. Kan. 246. 3 (1869).	Southern U. S., Cuba.
18. *semibrunnea* Buckton, Mon. Memb. 174 (1903).	Northeastern U. S.
19. *substriata* Walker, List Hom. B. M. 558. 1 (1851).	Southern U. S.
20. *uniformis* Fairmaire, Rev. Memb. 289. 25 (1846).	Southern U.S., Mexico, Cuba.
21. *viridis* Goding, Ent. News III : 111 (1892).	Colorado.
22. *wickhami* Van Duzee, Stud. N. A. Memb. 44. 3 (1908).	Western U. S.

105. GENUS STICTOLOBUS METCALF

Stictolobus Metcalf, Ent. News XXVII : 3 (1916).

Characters: The species *subulatus* Say had been a lost species for 85 years until it was rediscovered by Metcalf in 1916 and made the type of his genus *Stictolobus*. Since then six other species have been added to the genus so that it is now well established as a distinct group. As Metcalf's generic name was intended to indicate, the genus has characters suggesting those of both *Stictocephala* and *Cyrtolobus;* the venation is very similar to that of the former genus while the general shape of the pronotum suggests the latter. The head is subquadrate, broader than high; base highly arcuate with two prominent callosities; eyes rounded; ocelli conspicuous, a little nearer to each other than to the eyes (in the type species about equidistant) and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for more than half its length below inferior margins of genæ. Pronotum convex and rounded, highest behind middle; metopidium sloping, wider than high, lateral margins rounded, not angulate; humeral angles weak and rounded; median carina faint in front and stronger behind; sides of pronotum distinctly impressed in a semicircular indentation above lateral margins; posterior process long, slender, simple, decurved, as long as the abdomen, extending beyond the internal angles of the tegmina but not reaching their tips. Tegmina hyaline with five apical and three discoidal cells; median apical cell petiolate; apical limbus broad. Hind wings with five apical cells and no discoidal cell. Legs simple; hind tarsi longest.

Type *subulatus* Say.

Geographical distribution : Of the seven described species, four are from the United States and three are from South America.

1. *erectus* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 272 (1919). Brazil.
2. *juniperinus* Ball, Journ. Wash. Acad. Sci. XXVII : 11. 481 (1937). Arizona.
3. *lateralis* Funkhouser, Bull. Brook. Ent. Soc. XXXI : 1. 21 (1936). Illinois.
4. *maculatus* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 162 (1927). Brazil.
5. *septemfasciata* Goding, Trans. Amer. Ent. Soc. LII : 108 (1926). Ecuador.
6. *subulatus* Say, Journ. Acad. Nat. Sci. Phila. III : 300. 8 (1831). Southern U. S.
7. *trilineatus* Funkhouser, Ent. News. XXIX : 5. 186 (1918). — **Pl. 7, fig. 91.** Louisiana.

106. Genus TRACHYTALIS Fowler

Trachytalis Fowler, B. C. A. II : 115. 2. (1895).

Characters : Small inconspicuous insects characterized by the elongate unarmed pronotum and the fact that the tegmina have only four apical cells and one discoidal cell. Head subquadrate, twice as broad as long; base feebly sinuate; eyes small and ovate; ocelli inconspicuous, twice as far from each other as from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for about half its length below inferior margins of genæ but continuing the apical outline of the face made by these margins, tip rounded. Pronotum low and convex, more or less depressed anteriorly; dorsum nearly straight; no suprahumerals; metopidium sloping, broader than high; humeral angles well developed, blunt, triangular; median carina faintly percurrent; sides of pronotum with no indication of a semicircular impression; posterior process heavy, tectiform, usually decurved at the tip which reaches to a point about halfway between internal angles and tips of tegmina. Tegmina hyaline with basal and costal areas sparingly punctate; only four apical cells; one very large pentagonal discoidal cell; apical limbus very broad. Legs simple; hind legs much longer than the others and hind tarsi much the longest.

Type *isabellina* Fowler.

Geographical distribution : A genus represented by two Mexican species as follows :

1. *distinguenda* Fowler, B. C. A. II : 115. 2 (1895). — **Pl. 7, fig. 92.** Mexico.
2. *isabellina* Fowler, B. C. A. II : 115. 1 (1895). Mexico.

GENERA OF TRIBE AMASTRINI GODING

I. *Corium with three discoidal cells; third apical cell transverse*
  A. *Dorsum without tumid elevations*
    1. *Pronotum arcuate, compressed laterally* . . . . AMASTRIS Stål.
    2. *Pronotum convex, dorsum nearly straight*
      a. *Base of third apical cell of corium angulate; venation irregular; tegmina largely coriaceous*
        b. *Head extending obliquely forward* . . . . TYNELIA Stål.
        bb. *Head straight, perpendicular*. . . . . BOETHOOS Kirkaldy.
      aa. *Base of third apical cell a straight line; venation regular; tegmina hyaline* . . . . VANDUZEA Goding.

B. *Dorsum with swollen rounded elevations*

1. *Median apical cell stylate* . . . . LALLEMANDIA Funkhouser.

2. *Median apical cell truncate* . . . . BAJULATA Ball.

II. *Corium with two discoidal cells; third apical cell elongate*

A. *Pronotum convex, not laterally compressed*

1. *Dorsum highest in front; tegmina almost entirely covered by pronotum* HYGRIS Stål.

2. *Dorsum straight; tegmina one-half exposed* . . . . IDIODERMA Van Duzee.

B. *Pronotum elevated and laterally compressed* . . . . EROSNE Stål.

107. GENUS AMASTRIS STÅL

Amastris Stål, Rio Jan. Hem. II : 30 (1862).

Characters : Small to medium sized insects with high, arcuate, laterally compressed pronotum; tegmina about half covered by the pronotum, and corium with the median apical cell distinctly transverse. All of the described species of this genus are greenish in color, fading to yellowish or brownish in cabinet specimens. Head triangular, smooth; base sinuate; eyes large, globular, protruding; ocelli large, conspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus extending for half its length below inferior margins of genæ and carrying out the triangular outline of the face made by the sides of the genæ. Pronotum elevated, flattened laterally, smooth, highest in front; no suprahumeral horns; humeral angles broadly rounded; metopidium straight, keeled, much higher than broad; median carina strongly percurrent; sides of pronotum without rugæ or lateral impressions; dorsum gradually rounded from top of crest to posterior apex of pronotum which is heavy, tectiform, acute and extends just about to the tips of the tegmina. Tegmina usually hyaline, not more than half exposed; five apical and three discoidal cells; median apical cell transverse with base triangular and stylate; apical limbus moderate. Legs simple; hind tarsi longest.

Type *compacta* Walker.

Geographical distribution : Widely distributed over South and Central America and Mexico and two species from southern United States.

1. *antica* Germar, Mag. Ent. IV : 16 (1821).	Brazil.
2. *brunneipennis* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 31 (1922).	Brazil.
3. *compacta* Walker, List Hom. B. M. Suppl. 140 (1858). *fallax* Stål, Rio Jan Hem. II : 30. 1 (1862).	Brazil.
4. *consanguina* Stål, Rio Jan. Memb. II : 36. 3 (1862).	Brazil.
5. *elevata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 27 (1922).	Brazil, Peru, British Guiana.
6. *flavifolia* Stoll, Cigal. 61 (1780).	Surinam.
7. *funkhouseri* Haviland, Zoologica VI : 3. 251 (1925).	British Guiana.
8. *lycioda* Ball, Proc. Biol. Soc. Wash. 46. 27 (1933).	Arizona.
9. *maculata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 31 (1922).	Brazil.
10. *minuta* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 30 (1922).	Peru.
11. *obtegens* Fabricius, Syst. Rhyng. 11. 25 (1803). — **Pl. 7, fig. 93.** *citrina* Fairmaire, Rev. Memb. 309. 10 (1846).	Mexico, Panama, Colombia.

12. *projecta* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 28 (1922). Peru.
13. *sabulosa* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 29 (1922). Brazil.
14. *simillima* Stål, Rio Jan. Hem. II : 30. 2 (1862). Brazil, Peru, Colombia, Venezuela.
15. *templa* Ball, Proc. Biol. Soc. Wash. 46. 27 (1933). Utah.
16. *vismiæ* Haviland, Zoologica VI : 3. 252 (1925). British Guiana.

108. GENUS TYNELIA STÅL

Tynelia Stål, Ofv. Vet. Akad. 250 (1868).

Characters : Small, elongate, narrow-bodied insects distinguished particularly by the extended position of the head. Head projecting obliquely forward, subquadrate, almost as long as broad, smooth; base sinuate, lowest in middle; eyes large, ovate, protruding; ocelli very conspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ broadly rounded; clypeus extending for one-third its length below inferior margins of genæ and continuing the broadly rounded apical contour of the face. Pronotum regularly convex, highest in the middle; no suprahumerals; humeral angles blunt, rounded; metopidium sloping, broader than high; median carina faintly percurrent; sides of pronotum destitute of rugæ or impressions; posterior apex of pronotum heavy, broadly rounded, blunt, reaching just about to the tips of the tegmina. Tegmina about half concealed by the overhanging sides of the pronotum; usually hyaline; venation irregular; five apical and three discoidal cells; third apical cell transverse, base rounded and stylate; first apical cell located on the costal margin considerably in front of the tip; apical limbus broad. Legs simple; hind tarsi longest.

Type *longula* Burmeister.

Geographical distribution : The genus is at present limited to South and Central America with the following species :

1. *brunnea* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 26 (1922). — **Pl. 7, fig. 94.** Brazil.
2. *cinctata* Haviland, Zoologica VI : 3. 249 (1925). British Guiana.
3. *globosa* Haviland, Zoologica VI : 3 250 (1925). British Guiana.
4. *hirsuta* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 25 (1922). Peru.
5. *longula* Burmeister, Handb. Ent. II : 1. 143. 1 (1835). Brazil.
6. *nitida* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 25 (1922). Peru.
7. *prominens* Walker, List Hom. B. M. Suppl. 151 (1858). Brazil, Panama.
8. *pubescens* Fabricius, Syst. Rhyng. 29. 10 (1803). Brazil, Colombia.
9. *tumulata* Buckton, Mon. Memb. Pl. 39. Footnote (1903). Unknown.

109. GENUS BOETHOOS KIRKALDY

Boethoos (nom. nov.) Kirkaldy, Ent. XXXVII : 279 (1904).
Parmula (preoccupied) Fairmaire, Rev. Memb. 491 (1846).

Characters : Closely related to the preceding genus but with the head straight and perpendicular to the body and with the dorsum usually more or less sinuate in the middle. Head subtrian-

gular, smooth; base highest next to eyes and lowest in the middle as in the preceding genus; eyes large, ovate and protruding; ocelli small, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus projecting for about one-third its length below inferior margins of genæ and continuing the line of these margins to complete the triangular apical outline of the face. Pronotum broadly convex, usually somewhat constricted at about the middle and highest behind this constriction; metopidium sloping, broader than high; median carina obsolete; no suprahumerals; humeral angles well developed, triangular, blunt; sides of pronotum punctate but not ridged; posterior half of pronotum heavy, rounded, somewhat swollen, blunt, the apex not quite reaching the tips of the tegmina. Tegmina not more than half exposed; usually hyaline with very heavy veins; cells irregular in shape; five apical and three discoidal cells; median apical cell transverse, base nearly straight and petiolate; first apical cell situated well forward on the costal margin as in the preceding genus; apical limbus broad. Legs simple, subcylindrical; hind tarsi longest.

Type *reticulata* Fabricius.

Geographical distribution : A Middle-American genus found chiefly in Central America and Mexico and in the northern part of South America.

1. *curvispina* Walker, List Hom. B. M. Suppl. 152 (1858).	Brazil.
2. *dispar* Fabricius, Syst. Rhyng. 32. 23 (1803).	Brazil, Panama.
3. *distinguenda* Fowler, B. C. A. II : 91. 3 (1895).	Mexico, Honduras, Guatemala, British Guiana.
4. *gibbula* Fairmaire, Rev. Memb. 491. 3 (1846).	Brazil.
5. *reticulata* Fabricius, Syst. Rhyng. 29 (1803). — **Pl. 7, fig. 95.** *interrupta* Fabricius, Syst. Rhyng. 31. 17 (1803). *bistrigata* Fairmaire, Rev. Memb. 491.1 (1846). *biguttata* Fairmaire, Rev. Memb. 491.1 (1846).	Colombia, Brazil, Panama, Costa Rica, British Guiana.
6. *sellata* Burmeister, Rev. Silb. IV : 184 (1836).	Colombia, Venezuela.
7. *vertebralis* Fairmaire, Rev. Memb. 491. 2. (1846).	Colombia, Brazil.

110. Genus VANDUZEA Goding

Vanduzea Goding, Cat. Memb. N. A. 440 (1894).
Hypamastris Fowler, B. C. A. II : 92 (1895).

Characters : A distinct genus of small, inconspicuous, robust bodied insects characterized by the low, convex pronotum without processes, partly exposed tegmina, and particularly by the median apical cell of the corium which is definitely transverse and has a perfectly straight base from the middle of which a vein extends directly cephalad. Head convex, rounded, subtriangular; base weakly arcuate and sinuate; eyes ovate; ocelli prominent, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus feebly trilobed, extending for about half its length below inferior margins of genæ. Pronotum low, convex, usually slightly depressed in middle; metopidium convex, wider than high; median carina percurrent; no suprahumerals; humeral angles well developed, broad, triangular, blunt; sides of pronotum punctate but not ridged; lateral margins curved downward to cover about one-third of the tegmina; posterior process heavy, convex, blunt, extending just beyond the internal angles of tegmina. Tegmina about two-thirds exposed; usually hyaline; venation regular; five apical and three discoidal cells; median apical cell transverse, base straight and petiolate; apical limbus moderate. Legs simple ; hind tarsi longest.

Type *arquata* Say.

Geographical distribution : Primarily North American genus. The genus contains only a modest number of species but the number of individuals produced by some of the species is enormous. For example, the individuals of *V. arcuata, V. segmentata* and *V. triguttata* often appear in certain areas literally in countless thousands.

1. *albifrons* Fowler, B. C. A. II : 93. 3 (1895).	Guatemala, Mexico, Gulf of California.
2. *arquata* Say, Journ. Acad. Nat. Sci. Phila. V : 302 (1831). — **Pl. 7, fig. 96.** *apicalis* Walker, List Hom. B. M. 533. 33 (1851).	United States, Canada
3. *brunnea* Fowler, B. C. A. II : 94. 4 (1895).	Mexico.
4. *læta* Goding, Cat. Memb. N. A. 441. 138 (1894).	Western U. S., Mexico.
5. *minor* Fowler, B. C. A. II : 93. 2 (1895).	Mexico.
6. *nolina* Ball, Proc. Biol. Soc. Wash. 45. 82 (1932).	Arizona.
7. *punctipennis* Funkhouser, Journ. N. Y. Ent. Soc. XXVII : 4. 275 (1919).	Colombia.
8. *segmentata* Fowler, B. C A. II : 93. 1 (1895).	Mexico, Guatemala, Panama, western U S.
9. *testudinea* Haviland, Zoologica VI : 3. 251 (1925).	British Guiana.
10. *triguttata* Burmeister, Rev. Silb. IV : 183. 4 (1836). *tripunctata* Fairmaire, Rev. Memb. 497. 4 (1846) *annexus* Townsend, Can. Ent. XXIV : 196 (1892). *vestita* Goding, Ins. Life V : 92 (1892).	Southern and western U. S.
11. *variegata* Fowler, B. C. A. II : 94. 5 (1895).	Mexico.

111. GENUS LALLEMANDIA FUNKHOUSER

Lallemandia Funkhouser, Journ. N.Y. Ent. Soc. XXX : 33 (1922).

Characters : This genus was erected for the accommodation of a single rather remarkable species. The type species has since been found in two other countries than that of the type locality but no other congeneric forms have been reported. The distinctive features of the genus can therefore be judged only from those structures of the type species which seem to represent generic characters. These may be stated as follows : head subquadrate, flat, smooth, twice as wide as high; base sinuate, deeply indented in the middle; eyes enormous, globular. bulging; ocelli prominent, about equidistant from each other and from the eyes and situated a little below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ. Pronotum convex and bulbous; a transverse constriction just behind humeral angles and another at the base of the posterior process together with a deep longitudinal furrow down the median dorsal line, divides the pronotum into four rounded elevations, arranged in pairs on the posterior surface of the dorsum; metopidium low and sloping, broader than high; median carina present on metopidium but obsolete behind the line of the humeral angles; no suprahumerals; humeral angles strong, triangular, somewhat swollen; posterior process suddenly depressed behind last pair of bulbous nodes, flattened, truncate, reaching just beyond internal angles of tegmina; sides of pronotum roughly sculptured, punctate but not ridged, extended downward to cover about one-half of the tegmina. Tegmina hyaline, about half exposed; five apical and three discoidal cells; venation irregular; veins heavy; median apical cell triangular and petiolate; apical limbus broad and wrinkled. Legs simple, subcylindrical; hind tarsi longest.

Type *nodosa* Funkhouser.

Geographical distribution : The genus is known only from a single South American species.

1. *nodosa* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 1. 33 (1922). — **Pl. 7, fig. 97.** French Guiana, British Guiana, Brazil.

112. Genus BAJULATA Ball

Bajulata Ball, Proc. Biol. Soc. Wash. 46. 26 (1933).

Characters : The species *bajula* Goding was described in the genus *Evashmedea* but was early removed to *Vanduzea* in which genus it stood for many years but it always occupied a more or less anomalous position in that genus because of the swollen rounded elevations on the dorsum. In 1933 Ball erected the genus *Bajulata* for its accommodation. Its has since remained the single representative of the genus. The characters of the species which may be considered generic are as follows : head subquadrate, broader than high, roughly sculptured; base strongly sinuate; eyes ovate; ocelli conspicuous, a little farther removed from each other than from the eyes and situated slightly below a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus convex, swollen, extending for half its length below inferior margins of genæ. Pronotum low, convex, with two large dorsal swellings, one behind the other, the first bilobed and the second simple; metopidium convex, broader than high; no suprahumerals; humeral angles strong, triangular, blunt; median carina faintly percurrent; sides of pronotum punctate but not ridged and extended downward to cover about one-third of the tegmina; posterior process heavy, tectiform, blunt, just about as long as the abdomen and reaching a point half-way between internal angles and tips of tegmina. Tegmina about two-thirds exposed; hyaline with the basal and costal areas sparingly punctate; veins strong and punctate; five apical and three discoidal cells; median apical cell transverse with the base obtusely angulate and petiolate; apical limbus narrow. Legs simple; hind tarsi longest.

The genus is closely related to *Vanduzea* from which, however, it is at once distinguished by the dorsal lobes.

Type *bajula* Goding.

Geographical distribution : Known only from the type species from Arizona.

1. *bajula* Goding, Cat. Memb. N. A. 437. 129 (1894). — **Pl. 7, fig. 98.** Arizona.

113. Genus HYGRIS Stål

Hygris Stål, Rio Jan. Hem. II : 29 (1862).

Characters : A genus erected to accommodate a single small, inconspicuous species characterized particularly by the low, convex pronotum and the character of the almost entirely exposed tegmina which shows only two discoidal cells in the corium. Head triangular, convex; base strongly sinuate; eyes small, twice as broad as high; ocelli inconspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for more than half its length below inferior margins of genæ. Pronotum convex, highest in front, slightly depressed in middle, somewhat broader behind; metopidium straight, broader than high; no suprahumerals; humeral angles strong, triangular, blunt; median carina strongly percurrent; sides of

pronotum punctate but not ridged, extending downward to cover almost all of the tegmina; posterior process heavy, tectiform, acute, reaching almost to tips of tegmina. Tegmina less than one-fourth exposed; hyaline with basal and costal areas punctate; five apical and two discoidal cells; median apical cell elongate and stylate; apical limbus narrow. Legs simple; hind tarsi longest.

Type *unicarinata* Stål.

Geographical distribution : The genus is represented by a single South American species.

1. *unicarinata* Stål, Rio Jan. Hem. II : 29. 1 (1862). — **Pl. 7, fig. 99**. Brazil.

114. GENUS IDIODERMA VAN DUZEE

Idioderma Van Duzee, Florida Hem. 208 (1909).

Characters : This genus is very close to the preceding and may eventually prove to be a synonym of *Hygris* but until more species are described in both genera and until more material is available for study, we prefer to consider it distinct. The three described species are all very small, elongate, inconspicuous insects with the following characters which may be considered to be generic. Head subquadrate, more than twice as broad as long; base strongly arcuate, depressed in middle; eyes globular; ocelli conspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus extending for half its length below inferior margins of genæ. Pronotum low, convex; dorsum almost straight; metopidium sloping, wider than high; no suprahumerals; humeral angles weak, auricular, rounded; median carina faintly percurrent; sides of pronotum punctate but not ridged, extending downward to cover about half of the tegmina; posterior process convex, pointed, extending almost to tips of the tegmina. Tegmina hyaline; about half exposed; five apical and two discoidal cells; median apical cell triangular and petiolate; apical margin moderate. Legs simple; hind tarsi longest.

Type *virescens* Van Duzee.

Geographical distribution : This genus has been reported only from southeastern United States and from the West Indies as follows :

1. *picta* Osborn, Ann Ent. Soc. Amer. XIX : 360 (1926). Cuba.
2. *varia* Van Duzee, Florida Hem. 208. 256 (1909). Florida.
3. *virescens* Van Duzee, Florida Hem. 208. 255 (1909). **Pl. 7, fig. 100**. Florida, Cuba.

115. GENUS EROSNE STÅL

Erosne Stål, Bid. Memb. Kan. 240 (1869).

Characters : Superficially the insects of this genus greatly resemble those of the genus *Amastris* but may be distinguished by the facts that the corium has only two discoidal cells, the median apical cell is triangular, and the basal and costal areas of the tegmina are densely punctate. Head roundly triangular; base arcuate and feebly sinuate; eyes ovate; ocelli conspicuous, farther from each other than from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus projecting only slightly below margins of genæ and carrying out the rounded outline of the face made by these margins. Pronotum elevated, compressed laterally, highest in front; metopidium vertical, higher than wide; no suprahumerals; humeral angles strong, triangular, blunt; median carina strongly

percurrent; sides of pronotum roughly sculptured with a suggestion of a curved ridge behind the humeral angles and extended downward to cover more than half of the tegmina; dorsum gradually rounded from top of crest to tip of posterior apex of pronotum which is heavy, tectiform, and just reaches the tips of the tegmina. Tegmina about one-third exposed, the basal and costal areas densely punctate and coriaceous; five apical and two discoidal cells; median apical cell triangular and petiolate. Legs simple; hind tarsi longest.

Type *brachteata* Stål.

Geographical distribution : Only two species, both from South America, have been described for this genus but there are unquestionably more species to be described, for we have seen undescribed material in many collections standing under *Amastris* which undoubtedly belonged to *Erosne*.

1. *brachteata* Stål, Bid. Memb. Kan. 240. 1 (1869). Surinam, Ecuador
2. *notata* Walker, Ins. Saund. 72 (1858). — **Pl. 7, fig. 101.** Brazil, Colombia.

GENERA OF THE TRIBE POLYGLYPTINI GODING

I. *Pronotum with a long, slender, porrect anterior horn*
 A. *Corium with five apical cells*
  1. *Dorsum convex, rounded* . . . . POLYGLYPTA Burmeister.
  2. *Dorsum sharply tectiform* . . . . BRYANTOPSIS Ball.
 B. *Corium with three apical cells.* . . . . BILIMEKIA Fowler.
II. *Pronotum without a pronotal horn or with only a short broad, anterior protuberance*
 A. *Dorsum flattened laterally; deeply notched at middle* . . . . ENTYLIA Germar.
 B. *Dorsum rounded; slightly sinuate at middle.* . . . . PUBLILIA Stål.

116. GENUS POLYGLYPTA BURMEISTER

Polyglypta Burmeister, Handb. Ent. II : 142 (1835).

Characters : Long, slender, narrow-bodied insects with the pronotum strongly ridged longitudinally, a long, slender horn projecting forward, corium with two contiguous longitudinal veins and with five apical cells and with the dorsum rounded and convex. Head roughly triangular with heavy rugæ; base sinuate, lowest in the middle; eyes globular; ocelli small, twice as far from each other as from the eyes and situated well below a line through centers of eyes; inferior margins of genæ strongly sinuate; clypeus extending for half its length below inferior margins of genæ, its sides continuing the triangular shape of the face made by the margins of the genæ. Pronotum low, convex, strongly, longitudinally ridged; anterior pronotal horn long, strong, porrect, extending forward over the head; metopidium projecting forward, keeled, broader than high; median carina strongly percurrent; no suprahumerals; humeral angles weak, rounded; sides of pronotum strongly, longitudinally ridged and punctate and extended downward to cover more than half of the tegmina; dorsum nearly straight, highest just behind line of humeral angles, gradually curving to tip of posterior process which is long, slender, convex, acuminate, and reaches beyond the tips of the tegmina. Tegmina not more than one-third exposed, hyaline, with basal and costal areas strongly punctate; two prominent longitudinal veins; five apical cells; median apical cell stylate; apical limbus narrow. Legs simple, subcylindrical: hind tarsi slightly longer than the others.

Type *costata* Burmeister.

Geographical distribution : Primarily a Central American genus but represented also in northern South America, in Mexico and in southern United States. Some of the species show a wide variation in color markings which has resulted in many synonyms.

1. ***abbreviata*** Walker, List Hom. B. M. Suppl. 136 (1858). — Mexico.
2. ***aguæ*** Fowler, B. C. A. II : 126. 7 (1895). — Guatemala.
3. ***brevivitta*** Walker, List Hom. B. M. 545. 13 (1851). — Venezuela.
4. ***buctoni*** (nom. nov.) Funkhouser, Cat. Memb. 324 (1927). — Honduras.
   strigata (preoccupied) Buckton, Mon. Memb. 180 (1903).
5. ***costata*** Burmeister, Handb. Ent. II : 142. 16 (1835). — **Pl. 7, fig. 102.** — Mexico, Colombia, Guatemala, Costa Rica, Honduras, Yucatan, Panama.
   pilosa Fairmaire, Rev. Memb. 296. 1 (1846).
   nigriventris Fairmaire, Rev. Memb. 297. 6 (1846).
   viridimacula Fairmaire, Rev. Memb. 298. 7 (1846).
   interrupta Walker, List Hom. B. M 545. 14 (1851).
   straminea Walker, List Hom. B. M. 544. 12 (1851).
   strigata Walker, List Hom. B. M. Suppl. 136 (1858).
   bogotensis Dohrn, Cat. Hem. 79 (1859).
   reflexa Butler, Cist. Ent. II : 207. 1 (1877).
   godmani Distant, Ent. Month. Mag. XVI : 11 (1880).
   nigrodorsis Fowler, B. C. A. II : 123 (1896).
6. ***dispar*** Fowler, B. C. A. II : 126. 6 (1896). — Panama.
7. ***dorsalis*** Burmeister, Rev. Silb. IV : 178. 2 (1836). — Mexico, Honduras, Guatemala, Costa Rica, Brazil, Colombia, Peru, Ecuador, Texas, Georgia.
   maculata Burmeister, Rev. Silb. IV : 178. 3 (1836).
   pallipes Burmeister, Rev. Silb. IV : 179. 4 (1836).
   sicula Amyot and Serville, 541 (1843).
   flavomaculata Amyot and Serville, Pl. 9, fig. 9 (1843).
   nigella Fairmaire, Rev. Memb. 298. 10 (1846).
   fusca Butler, Cist. Ent. II : 208. 6 (1877).
   hordacea Butler, Cist Ent. II : 209. 7 (1877).
   tricolor Butler, Cist. Ent. II : 209. 8 (1877).
8. ***lineata*** Burmeister, Rev. Silb. IV : 179. 5 (1836). — Mexico, Honduras, Guatemala, Canal Zone, Yucatan.
   tredecemcostata Fairmaire, Rev. Memb. 299. 11 (1846).
   abbreviata Walker, List Hom. B M. Suppl. 136 (1858).
   major Fowler, B. C. A. II : 126 (1895).

117. GENUS BRYANTOPSIS BALL

Bryantopsis Ball, Journ. Wash. Acad. Sci. XXVII : 11. 482 (1937).

Characters : We have not had an opportunity to see a representative of this genus, recently erected by Ball, and are therefore unable to write a generic description based on the examination of an actual specimen nor to figure the type. From the original description of the genus and the description of the type species, it would appear that this genus stands between *Polyglypta* and *Publilia*, differing from the former in the sharply tectiform pronotum and from the latter in the presence of the anterior pronotal horn. Ball's original description, which follows, should be sufficient to characterize the genus.

« A typical *Polyglyptini* resembling *Publilia* Stål, except that there is a definite anterior horn especially marked in the female, superficially resembling *Metheisa* Fowl., especially in the shape and length of the horn in the male, but differing radically in venation which has warranted Goding in placing this latter genus in the *Smilini*.

» As seen from the side with an anterior horn extending obliquely upwards as in *Phyla* for

one-third the body length in the female the horn compressed at apex, cut off obliquely and occasionally expanded. There are three lateral carinæ. The pronotum covers most of the elytra, is acutely tectiform with four or five lateral carinæ, the inner one with branches to the highest part of the crest. The face is slightly longer than in *Publilia*, the venation of the elytra similar. »

Type *ensiger* Ball.

Geographical distribution : Represented only by the type species from Arizona.

1. *ensiger* Ball, Journ. Wash. Acad. Sci. XXVII : 11. 482 (1937). Arizona.

118. Genus BILIMEKIA Fowler

Bilimekia Fowler, B. C. A. II : 127 (1895).

Characters : Insects which greatly resemble the species of *Polyglypta*, with long, slender bodies and single porrect pronotal horns, but with the posterior end of the pronotum bluntly rounded, with the head trilobed,the tegmina almost entirely covered and with only three apical cells in the tegmina. Head subquadrate, twice as broad as high, strongly trilobed; base nearly straight; eyes very much flattened; ocelli inconspicuous, farther from each other than the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ extending downward in large rounded lobes, to form, with the clypeus, a trilobed ventral outline of the face. Pronotum long, slender, cylindrical; dorsum convex; metopidium merging gradually into the inferior surface of the pronotal horn; humeral angles very weak, practically obsolete; pronotal horn long, cylindrical, projecting forward over the head, strongly ridged on all sides, apex blunt; sides of pronotum strongly, longitudinally multicarinate, extending downwards to almost completely cover the tegmina; posterior process very blunt and rounded, just reaching the tips of the tegmina. Tegmina almost entirely covered by the sides of the pronotum; hyaline; three apical cells and one discoidal cell; apical limbus narrow. Hind wings with three apical cells. Legs much inclined to be foliaceous, particularly the front and middle tibiæ which are distinctly flattened. Hind tarsi a little shorter than the others.

Type *styliformis* Fowler.

Geographical distribution : The two described species are both from Mexico and both are apparently quite abundant since they are generally to be found in collections from that country.

1. *minor* Fowler, B. C. A. II : 128. 2 (1895). Mexico.
2. *styliformis* Fowler, B. C. A. II : 127. 1 (1895). Mexico.

119. Genus ENTYLIA Germar

Entylia Germar, Rev. Silb. I : 178 (1835).

Characters : A very distinct genus recognized at once by the laterally flattened dorsum with a deep broad notch in the center which results in prominent high anterior and posterior lobes. There are no other processes or protuberances. The pronotum is strongly ridged and the tegmina are largely covered by the overhanging sides of the pronotum. Head roughly triangular with inferior margin rounded; base sinuate, lowest in middle and with the superior lateral margins angulate above the eyes; eyes ovate with inner surfaces straight; ocelli prominent, elevated, nearer to each other than to the eyes and situated considerably below a line drawn through centers of eyes; inferior margins of genæ sinuate;

clypeus broadly rounded, extending for half its length below inferior margins of genæ and continuing the rounded inferior outline of the face made by those margins. Pronotum elevated, flattened laterally, strongly ridged, with a deep broad notch in the center which results in a high anterior and posterior lobe on the dorsum; metopidium triangular, about as high as wide; median carina strongly percurrent; humeral angles broadly rounded; sides of pronotum roughly and irregularly carinate and extended downward to cover at least two-thirds of the tegmina; posterior process tectiform, gradually acute, extending just beyond the tips of the tegmina. Tegmina hyaline, only about one-third exposed, basal and costal areas punctate and coriaceous; five apical and two discoidal cells; apical limbus broad on anal margin and obsolete on costal and apical margins. Legs simple, subcylindrical; all tarsi about equal in length.

Type *sinuata* Fabricius.

Geographical distribution : *Entylia* is primarily a North American genus. Only a limited number of species have been described but these species are represented by an almost unbelievable number of individuals. The individuals of such species as *bactriana* and *sinuata* often appear on the host plants in such numbers as to completely cover the leaves and stems. Many of the species show a great deal of variation in colors and in the shape of the dorsal lobes so that several synonyms must be recorded.

1. *areolata* Walker, Ins. Saund 71 (1858).	Haiti.
2. *bactriana* Germar, Rev Silb. III : 248 (1835). *accisa* Walker, List Hom. B. M. 548. 8 (1851). *indecisa* Walker, List Hom. B. M. 549 (1851). *reducta* Walker, List Hom. B. M. 549 (1851).	Eastern Canada, eastern and southern U. S
3. *carinata* Forster, Nov. Spec. Ins. Cent. I : 67 (1771) *torva* Fitch, Cat. Hom. N. Y. 47. 647 (1851). *impedita* Walker, List Hom. B. M. Suppl. 137 (1858). *vittata* Buckton, Mon. Memb 185 (1903).	Eastern Canada, northeastern U. S.
4. *concisa* Walker, List Hom. B. M. 547. 6 (1851). *decisa* Walker, List Hom. B. M. 548. 7 (1851).	Southern and western U. S.
5. *fallax* Stål, Rio Jan. Hem. II : 28. 2 (1862).	Brazil.
6. *fuscodorsa* Buckton, Trans. Linn. Soc. Zool. IX : 332 (1905).	Unknown.
7. *gemmata* Germar, Mag. Ent. IV : 16. 11 (1818). *corniculata* Fairmaire, Rev. Memb. 300 (1846). *incisa* Walker, List Hom. B. M. 548. 9 (1851).	Brazil, Venezuela, Mexico, Guatemala, Chile.
8. *moesta* Buckton, Trans. Linn. Soc. Zool. IX : 332 (1905).	Mexico.
9. *sinuata* Fabricius, Ent. Syst. Suppl. 513 (1798). — **Pl. 8, fig. 104.** *emarginata* Fabricius, Ent. Syst. Suppl. 513 (1798). *mira* Butler, Cist. Ent. II : 212 (1877). *inæqualis* Butler, Cist. Ent. II : 211 (1877). *œdipus* Buckton, Mon. Memb. 183 (1903).	Southern U.S., Central America, northern S A., Mexico.
10. *turrita* Butler, Cist. Ent. II : 212. 8 (1877).	Brazil.

120. GENUS PUBLILIA STÅL

Publilia Stål, Berl. Ent. Zeit. X : 387 (1867).

Characters : Closely related to the preceding genus but with the pronotum rounded and without the two prominent dorsal lobes. Head irregularly triangular, roughly sculptured; base sinuate, highest in middle; eyes ovate, truncate on interior margin; ocelli conspicuous, somewhat elevated, nearer to each other than to the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus broadly rounded, extending for about one-third its length below inferior margins of genæ and continuing the rounded apical outline of the face made by those margins. Pronotum con-

vex, sinuate near the middle, very little compressed laterally; metopidium vertical, broader than high; median carina strongly percurrent; humeral angles large, broadly rounded; no suprahumerals; sides of pronotum strongly, roughly, irregularly multicarinate and extended downward to almost entirely cover the tegmina; dorsum gradually arcuate from top of crest to tip of posterior process which is heavy, tectiform, gradually acute and reaches slightly beyond the tips of the tegmina. Tegmina not more than one-fourth exposed, hyaline, basal and costal areas densely punctate and coriaceous; five apical and two discoidal cells; apical limbus narrow. Legs simple; tarsi about equal in length.

Type *concava* Say.

Geographical distribution : This is another North American genus which like *Entylia* contains only a few species but an enormous number of individuals.

1. *concava* Say, Narr. Long's Exped. App. 311 (1824). — **Pl. 8, fig. 105**. Canada, United States.
   extensa Walker, List Hom. B. M. 554. 20 (1851).
   nigridorsum Goding, Cat. Memb. N. A. 399 (1894).
   grisea Buckton, Mon. Memb. 184 (1903).
   vittata Buckton, Mon. Memb. 185 (1903).
2. *erecta* Plummer, Memb. Mexico 379 (1935). Mexico.
3. *modesta* Uhler, List Hom. Colo. and New Mex. 472 (1872). Western U. S.
   bicinctura Goding, Ent. News III : 200 (1892).
4. *porrecta* Fowler, B. C. A. II : 131. 2 (1896). Mexico.
5. *reticulata* Van Duzee, Stud. N. A. Memb. 106. 2 (1908). United States.

GENERA OF THE TRIBE TELAMONINI GODING

I. *Hind wings with four apical cells*

A. *Pronotum bearing a horn or crest*

1. *Pronotum with a crest most of which is behind humerals*

a. *Crest more or less quadrangular, not stepped* . . . . TELAMONA Fitch.

aa. *Crest not quadrangular, either overhanging, pyramidal, lobed or stepped*

b. *Crest overhanging in front* . . . . HELONICA Ball.

bb. *Crest not overhanging; if extended forward the dorsal margin lobed or stepped*

c. *Crest distinctly stepped, the anterior lobe high and rounding, the posterior low and quadrangular* . . . . HELIRIA Stål.

cc. *Crest sinuate or weakly angulate*

d. *Crest high, foliaceous, arising from metopidium* . . . TELONACA Ball.

dd. *Crest placed well back of metopidium* . . . . . . PALONICA Ball.

2. *Pronotum with an anterior horn arising from in front of humerals*

a. *Horn porrect, extending forward and upward* . . . . . . THELIA Amyot and Serville.

aa. *Horn erect, compressed laterally* . . . . GLOSSONOTUS Butler.

B. *Pronotum without horn or angular crest*

1. *Pronotum low and convex* . . . . CARYNOTA Fitch.

2. *Pronotum high and foliaceous*

a. *Metopidium rounded posteriorly, without a carina* . . . . . TROPIDARNIS Fowler.

aa. *Metopidium upright, with a raised carina* . . . . ARCHASIA Stål.

II. *Hind wings with three apical cells*

A. *Dorsum with strong longitudinal ridges*

1. *Longitudinal veins of corium coalescing near middle of tegmina* . . INCOLEA Goding.

2. *Longitudinal veins of corium not coalescing* . . . . MENDICEA Goding.

B. *Dorsum without longitudinal ridges*

1. *Corium with no discoidal cells* . . . . APHETEA Fowler.

2. *Corium with two or more discoidal cells* . . . . PHORMORPHORA Stål.

121. GENUS TELAMONA FITCH

Telamona Fitch, Hom. N. Y. State Cab. 50 (1851).

Characters : The type genus of the tribe *Telamonini* represents a very interesting group of membracids characterized primarily by the fact that the pronotal development is chiefly dorsad rather than cephalad or caudad, resulting in a hump or crest arising from the median line. The tegmina are more or less covered by the sides of the pronotum and the hind wings have a sessile median apical cell with the base truncate.

The genus *Telamona* is characterized by having four apical cells in the tegmina and particularly by the fact that the dorsal crest is quadrangular, without a distinct step on the posterior margin, and arises from behind the line of the humeral angles. The insects are generally large in size, robust and heavy-bodied but often rather inconspicuous because of their protective coloration and their resemblance to the bark of their hosts.

Head subquadrangular, twice as broad as high; base strongly arcuate and sinuate; eyes large and ovate; ocelli large, conspicuous, much nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus extending for only about one-fourth its length below inferior margins of genæ. Pronotum elevated into a more or less quadrangular dorsal crest which is mostly behind the line of the humeral angles and which does not show a distinct step on the posterior margin; metopidium vertical or sloping, triangular; median carina strongly percurrent; humeral angles much developed into broad, heavy, triangular, blunt extensions; sides of pronotum punctate, often roughly sculptured but not ridged, and extended downward to cover about half of the tegmina; posterior process tectiform, gradually acute, usually extending just about to tips of tegmina. Tegmina hyaline or smoky; basal area punctate; five apical and two discoidal cells; apical limbus well developed. Hind wings with four apical cells, the median apical cell sessile and truncate at base. Legs simple; all tarsi about the same in length.

Type *ampelopsidis* Harris.

Geographical distribution : Primarily a North American genus with a considerable number of species and a large number of individuals. *Telamona* is distinctly a tree-inhabiting genus and has a wide variety of hosts, the distribution of the species apparently being determined by the range of the particular trees on which they live.

1. *ampelopsidis* Harris, Rept. Ins. Mass. 180 (1841). — **Pl. 8, fig. 106.** — Eastern Canada, eastern, southern and western U. S.

cissi (MS name) Harris, Rept. Ins. Mass. 584 (1833).
cyrtops Fairmaire, Rev. Memb. 310. 17 (1846).
diffusa Walker, List Hom. B. M. Suppl. 143 (1858).
tigrina Ball, Ent. Amer. XII : 1. 44 (1931).

2. *balli* Plummer, Ann. Ent. Soc. Amer. XXIX : 4. 687 (1936).	Mexico.
3. *calva* Ball, Proc. Biol. Soc. Wash. 46. 26 (1933).	California.
4. *celsa* Goding, Amer. Mus. Novit. 21 (1930).	Brazil.
5. *collina* Walker, List Hom. B. M. 565. 35 (1851). *pruinosa* Van Duzee, Trans. San Diego Soc. Nat. Hist. II : 1. 50. 276 (1914).	United States.
6. *compacta* Ball, Proc. Biol. Soc. Wash. XVI : 180 (1903).	Western United States.
7. *concava* Fitch, Cat. Hom. N. Y. 50. 686 (1851).	Eastern and central U. S.
8. *conica* Walker, List Hom. B. M. 557. 9 (1851).	Florida.
9. *coronata* Ball, Ent. Amer. XII : 1. 50 (1931).	California.
10. *decorata* Ball, Proc. Biol. Soc. Wash. XVI : 179 (1903). *barbata* Van Duzee, Stud. N. A. Memb. 65. 3 (1908).	United States.
11. *dorana* Ball, Ent. Amer. XII : 1. 49 (1931).	Florida.
12. *dubiosa* (nom. nov.) Van Duzee, Check List 1634 (1916). *irrorata* (nom. nud.) Goding, Ins. Life V : 93 (1892).	Eastern and central U. S.
13. *ehrhorni* Ball, Proc. Biol. Soc. Wash. XVI : 180 (1903).	Arizona.
14. *ellæ* Goding, Ins. Life V : 93 (1892).	Unknown.
15. *extrema* Ball, Proc. Biol. Soc. Wash. XVI : 179 (1903).	Eastern and central U. S.
16. *gibbera* Ball, Journ. Wash. Acad. Sci. XV : 9. 204 (1925).	Arizona.
17. *gounellei* Fallou, Rev. Ent. IX : 354 (1891).	Brazil.
18. *jugata* Osborn, Iowa Acad. Sci. I : 128 (1891).	Iowa.
19. *maculata* Van Duzee, Stud. N. A. Memb. 72. 18 (1908).	Eastern and central U. S.
20. *molaris* Butler, Cist. Ent. II : 222 (1877).	Canada.
21. *monticola* Fabricius, Syst. Rhyng. IV : 7. 4 (1803). *querci* Fitch, Cat. Hom. N. Y. 51. 691 (1851). *brunneipennis* Buckton, Mon. Memb. 197 (1903).	Canada, United States.
22. *reclivata* Fitch, Cat. Hom. N. Y. 693 (1851).	Canada, United States.
23. *ruficarinata* Fowler, Trans. Ent. Soc. Lond. 421 (1894).	Colombia.
24. *salvini* Distant, Ent. Month. Mag. XVI : 11 (1879).	Guatemala.
25. *spiniger* Haviland, Zoologica VI : 3. 257 (1925).	British Guiana.
26. *spreta* Goding, Cat. Memb. N. A. 417 (1894). *lugubris* Ball, Proc. Biol. Soc. Wash. XVI : 179 (1903). *agrandata* Ball, Ent. Soc. Amer. XII : 1. 53 (1931).	Canada, east. and centr. U.S.
27. *subfalcata* Van Duzee, Bull. Buff. Soc. Nat. Sci. X : 509 (1912).	Eastern and southern U. S.
28. *tarda* Ball, Journ. Wash. Acad. Sci. XV : 9. 204 (1925).	Eastern U. S.
29. *tiliæ* Ball, Journ. Wash. Acad. Sci. XV : 9. 203 (1925).	Eastern, northern and central U. S.
30. *tristis* Fitch, Cat. Hom. N. Y. 51. 689 (1851). *coryli* Fitch, Cat. Hom. N. Y. 51. 690 (1851).	Eastern Canada, eastern and central U. S.
31. *turritella* Buckton, Mon. Memb. 198 (1903).	Saguenay.
32. *unicolor* Fitch, Cat. Hom. N. Y. 50. 684 (1851). *fasciata* Fitch, Cat. Hom. N. Y. 50. 685 (1851).	Eastern Canada, eastern, southern and central U. S.
33. *vestita* Ball, Journ. Wash. Acad. Sci. XV : 9. 205 (1925).	California, Oregon.
34. *westcotti* Goding, Cat. Memb. N. A. 415. 86 (1894). *obsoleta* Ball, Proc. Biol. Soc. Wash. XVI : 178 (1903).	United States.
35. *woodruffi* Ball, Journ. Wash. Acad. Sci. XV : 9. 205 (1925).	Eastern U. S.

122. GENUS HELONICA BALL

Helonica Ball, Ent. Amer. XII : 1. 15 (1931).

Characters : The genus *Helonica* was erected to accommodate those species which at that time stood under the genus *Telamona* but in which the pronotal crest extended forward in a large rounded lobe over the head. In certain other respects, also, such as in the more exposed tegmina, the shorter posterior process and the longer hind tarsi, the genus seems to have distinctive characters. Head subquadrate, twice as broad as high; base arcuate and strongly sinuate; eyes large and ovate; ocelli large, conspicuous, somewhat elevated, much nearer to each other than to the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for almost one-third its length below inferior margins of genæ. Pronotum developed into a strong, laterally flattened anterior crest which projects forward over the head; metopidium sloping, triangular, median carina strongly percurrent; humeral angles large, triangular, acute, extending outward as far beyond the eyes as the width of the eyes; sides of pronotum punctate, feebly and irregularly carinate, extended downward to cover about half of the tegmina; posterior process tectiform, gradually acute, not quite reaching the tips of the tegmina. Tegmina about half exposed; hyaline, basal costal area weakly punctate; five apical and two discoidal cells, the inner discoidal cell sometimes divided; apical limbus broad. Legs simple; hind tarsi much longer than the others.

Type *excelsa* Fairmaire.

Geographical distribution : The genus seems to be limited to southern and western United States and Mexico and we suspect that some of the four species here listed may prove be synonyms but would prefer to consider them as distinct until further material is available for study.

1. *albidorsata* Fowler, B. C. A. II : 145. 6 (1896). — Mexico.
2. *excelsa* Fairmaire, Rev. Memb. 310. 15 (1846). — **Pl. 8, fig. 107.** — Mexico, southern and central U. S.
3. *magniloba* Goding, Cat. Memb. N. A. 422. 80 (1894). — Illinois.
4. *projecta* Butler, Cist. Ent. II : 221 (1877). — Northeastern U. S.
   cucullata Van Duzee, Stud. N. A. Memb. 70. 14 (1908).

123. GENUS HELIRIA STÅL

Heliria Stål, Bid. Hem. Syst. 556 (1867).

Characters : In separating the genus *Heliria*, in his key, from *Thelia* and *Telamona*, Stål concisely distinguishes it as follows : « Protuberantia thoracis pone angulos lateralis posita, apice profunde sinuate, ante sinum valde elevata, pone sinum humuli, posterius angulata. » This structure of the dorsal crest, with a distinct step on the posterior margin, resulting in a high rounded anterior lobe and a low angulate posterior lobe, is sufficient to characterize the genus. In other respects it differs very little from *Telamona* except in the shape of the head. Head subtriangular and roughly sculptured; base arcuate and deeply sinuate in the middle; eyes large and ovate; ocelli large, prominent, elevated, nearer to each other than to the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus with a median lobe which extends only slightly below the inferior margins of the genæ so that the clypeus as a whole continues the roughly triangular outline of

the face. Pronotum elevated in a dorsal crest which consists of two distinct lobes, a rounded anterior lobe and a lower, angulate posterior lobe; metopidium convex and sloping, broader than high; median carina strongly percurrent; humeral angles broadly flattened and produced into triangular, auriculate extensions; sides of pronotum punctate, feebly and irregularly ridged, extended downward to cover about half of the tegmina; posterior process strong, heavy, tectiform, gradually acute, reaching just about to the tips of the tegmina. Tegmina hyaline; about half exposed; basal and costal areas strongly punctate; five apical and two discoidal cells; apical limbus well developed. Legs simple, subcylindrical; hind tarsi longest.

Type *cristata* Fairmaire.

Geographical distribution : The genus is found in the United States, Canada and Mexico with the following species :

1. *clitella* Ball, Journ. Wash. Acad. Sci. XV : 9. 201 (1925).	Arizona.
2. *cornutula* Ball, Journ. Wash. Acad. Sci. XV : 9. 201 (1925).	Eastern U. S.
3. *cristata* Fairmaire, Rev. Memb. 311. 19 (1846). — **Pl. 8, fig. 108.** *acclivata* Emmons, Agr. N. Y. V : 155 (1854). *reclivata* Glover, MS Journ. Pl. I, fig. 19 (1878).	Eastern and central U. S.
4. *fagi* Fitch, Cat. Hom. N. Y. 51. 687 (1851).	Northeastern U. S.
5. *fitchi* Ball, Journ. Wash. Acad. Sci. XV : 9. 202 (1925).	Eastern U. S.
6 *gemma* Ball, Journ. Wash. Acad. Sci. XV : 9. 202 (1925).	Northeastern U. S.
7. *gibberata* Ball, Journ. Wash. Acad. Sci. XV : 9. 200 (1925).	Western U. S.
8. *mexicana* Stål, Bid. Mem. Kan. 249. 1 (1869).	Mexico, California.
9. *prealta* Fowler, Trans. Lond. Ent. Soc. 420 (1894).	Canada, eastern U. S.
10. *rubidella* Ball, Proc. Biol. Soc. Wash. XXXI : 28 (1918).	Western U. S.
11. *scalaris* Fairmaire, Rev. Memb. 311. 18 (1846). *clivulata* Ball, Ent Amer. XII : 1. 29 (1931).	Canada, United States.
12. *sinuata* Fowler, B. C. A. II : 144. 4 (1896).	Mexico, southwestern U. S.
13. *strombergi* Goding, Ins. Life V : 93 (1892).	Central and western U. S.

124. Genus TELONACA Ball

Telonaca Ball, Proc. Biol. Soc. Wash. XXXI : 1. 27 (1918).

Characters : A genus of the *Telamona* group, distinguished from the type genus of the tribe by the high, sinuate, somewhat foliaceous crest arising directly above the metopidium. Head subovate, much wider than high; base arcuate and strongly sinuate; eyes ovate, twice as wide as high; ocelli large, conspicuous, nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus extending only a very little below the inferior margins of the genæ and continuing the rounded apical outline of the face made by the genæ. Pronotum elevated in a strong, high crest arising from the metopidium, its frontal margin anterior to the humeral angles; metopidium triangular; median carina percurrent; humeral angles produced into broad, sharp, auriculate extensions; sides of pronotum punctate, the posterior half bearing longitudinal ridges, and extended downward to cover about one-third of the tegmina. Tegmina hyaline; about two-thirds exposed; basal costal area weakly and coarsely punctate; five apical and two discoidal cells; apical limbus well developed. Legs simple; hind tarsi longest.

Type *ramona* Ball.

Geographical distribution : This genus has been reported to date only from the United States and Canada with the three following recognized species :

1. *alta* Funkhouser, Ent. News XXVI : 3. 97 (1915).	Georgia, Florida.
2. *pasadena* Ball, Ent. Amer. XII : 1. 33 (1931).	California.
3. *ramona* Ball, Proc. Biol. Soc. Wash. XXXI : 28 (1918). — **Pl. 8, fig. 109.**	California.

125. Genus PALONICA Ball

Palonica Ball, Ent. Amer. XII : 1. 34 (1931).

Characters : Another genus of the *Telamona* group and very closely related to the preceding genus *Telonaca* but distinguished by the fact that the dorsal crest arises from behind the metopidium. Head subquadrangular, much wider than high; base arcuate and strongly sinuate; eyes ovate, much wider than high; ocelli large, prominent, much nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ at first straight and then suddenly curved downward; clypeus not extending below the inferior margins of the genæ but continuing the rounded apical outline of the face made by the genæ. Pronotum elevated in a high, pyramidal crest arising from back of the metopidium with its frontal margin behind the line of the humeral angles; metopidium sloping, triangular; median carina strongly percurrent; humeral angles large, broad, triangular, blunt, extending outward beyond the eyes as far as the width of the eyes; sides of pronotum punctate, roughly sculptured, feebly carinate posteriorly, extended downward to cover about half of the tegmina; posterior process long, slender, tectiform, acute, reaching beyond the tips of the tegmina. Tegmina about half exposed; hyaline; coarsely punctate at base; five apical and two discoidal cells; apical limbus broad. Legs simple; hind tarsi much longer than the others.

Type *pyramidata* Uhler.

Geographical distribution : Primarily a North American genus but one species has been found in Guatemala.

1. *portolo* Ball, Ent. Amer. XII : 1. 36 (1931).	California.
2. *pyramidata* Uhler, Wheeler's Rept. App. J. 1333 (1877). — **Pl. 8, fig. 110.** *declivata* Van Duzee, Stud. N. A. Memb. 64. 1 (1908). var. : *ampliata* Ball, Ent. Amer. XII : 1. 37 (1931). *nasuta* Ball, Ent. Amer. XII : 1 (1931).	United States, Canada.
3. *satyrus* Fowler, B. C. A. II : 145 (1896).	Guatemala.
4. *tremulata* Ball, Journ. Wash. Acad. Sci. XV : 9. 203 (1925).	United States, Canada.
5. *viridia* Ball, Proc. Biol. Soc. Wash. XVI : 178 (1903).	Western U. S.

126. Genus THELIA Amyot and Serville

Thelia Amyot and Serville, Hémip. 540 (1843).

Characters : The strong, robust, porrect pronotal horn, extending forward and upward, distinguishes this genus from all of the other genera of the tribe. Head subquadrate, much broader than high; base strongly arcuate and feebly sinuate; eyes large and ovate; ocelli large, conspicuous,

much nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for about one-fourth its length below inferior margins of genæ. Pronotum with a long, strong, subcylindrical, blunt anterior horn which extends forward and upward, arising from in front of the humeral angles; metopidium vertical, triangular; median carina percurrent; humeral angles broad, blunt, triangular, extending directly laterad as far beyond the eyes as the width of the eyes; sides of pronotum punctate, weakly ridged posteriorly, extended downward to cover about one-third of the tegmina; posterior process heavy, tectiform, acute, just reaching the tips of the tegmina. Tegmina about two-thirds exposed; hyaline, translucent or clouded; basal costal areas coarsely punctate; five apical and two discoidal cells; apical limbus broad. Legs simple, subquadrate in cross-section; hind tarsi longest.

This genus has had a rather peculiar history in that at various times seventy-eight different species have been assigned to it, all but three of which have now been removed to other genera.

Type *bimaculata* Fabricius.

Geographical distribution : A distinctly tree-inhabiting genus with two species widely distributed over almost all parts of the United States and Canada and a third questionable species from Brazil.

1. *bimaculata* Fabricius, Ent. Syst. IV : 10. 11 (1794). — **Pl. 8, fig. 111.** United States, Canada.
2. *costigera* Butler, Cist. Ent. II : 353 (1878). Brazil.
3. *uhleri* Stål, Bid. Memb. Kan. 248. 1 (1869). United States, Canada.

127. Genus GLOSSONOTUS Butler

Glossonotus Butler, Cist. Ent. II : 222 (1878).

Characters : Closely related to the preceding genus but distinguished from it by the fact that the pronotal horn is practically erect and laterally compressed. It probably has, in fact, closer phylogenetic relationship to *Telamona* than to *Thelia* but the position of the dorsal crest, placed well forward on the pronotum, causes it to fall naturally in a taxonomic key in the position to which we have assigned it. Head subquadrate, roughly sculptured; base arcuate and very strongly sinuate; eyes large and ovate; ocelli large, very prominent, twice as far from the eyes as from each other and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus not extending below the inferior margins of the genæ but continuing the irregular sinuate apical outline of the face made by the genæ. Pronotum elevated in a single, laterally flattened, anterior horn which is erect or leans only slightly forward and is placed well forward on the dorsum; metopidium sloping, subtriangular; median carina strongly percurrent; humeral angles broad, blunt, triangular, extending laterad as far beyond the eyes as the width of the eyes; sides of pronotum punctate, weakly, longitudinally multicarinate posteriorly, extending downward to cover about one-fourth of the tegmina. Tegmina hyaline; three-fourths exposed; basal area coarsely punctate; five apical and two discoidal cells; apical limbus broad. Hind wings with median apical cell sessile and truncate at base. Legs simple, angulate in cross-section; hind tarsi very little longer than the others.

Type *acuminatus* Fabricius.

Geographical distribution : A strictly North American genus but with species represented in practically all parts of the United States and Canada.

1. *acuminatus* Fabricius, Syst. Ent. VI : 75 (1775). — **Pl. 8, fig. 112.** United States, Canada.

2. *cratægi* Fitch, Cat. Hom. N. Y. 52. 697 (1851). — United States, Canada.
pyramidoides Smith, Cat. Ins. N. J. 441 (1890).

3. *nimbulatus* Ball, Journ. Wash. Acad. Sci. XV : 9. 200 (1925). — Eastern and central U. S.

4. *turriculatus* Emmons, Agr. N. Y. V : 155 (1854). — Eastern U. S.
robinæ Goding, Can. Ent. XXV : 196 (1893).

5. *univittatus* Harris, Rept. Ins. Mass. 180 (1841). — United States, Canada.
godingi Van Duzee, Bull. Buff. Soc. Nat. Sci. V : 189 (1894).
dorsalis Buckton, Mon. Memb. 197 (1903).
var. : *pumilis* Ball, Ent. Amer. XII : 1. 15 (1931).

128. GENUS CARYNOTA FITCH

Carynota Fitch, Hom. N. Y. State Cab. 48 (1851).
Obtileta Stål, Bid. Hem. Syst. 556 (1867).

Characters : This genus definitely belongs to the *Telamona* group but differs from the other genera by having no anterior horn or crest. The pronotum is low and convex, the tegmina are about half exposed and the posterior process just about reaches the tips of the tegmina. Head subquadrate, twice as broad as high; base arcuate and weakly sinuate; eyes large and ovate; ocelli much nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; median portion only of clypeus projecting very slightly below inferior margins of genæ. Pronotum convex, without an anterior horn or crest; dorsum broadly rounded; metopidium sloping, broader than high; humeral angles weak, not prominent, rounded; sides of pronotum punctate, slightly impressed, extended downward to cover about half of the tegmina; posterior process strong, heavy, convex, acute, just about reaching the tips of the tegmina. Tegmina hyaline or smoky; about half exposed; basal area coarsely punctate; five apical and two discoidal cells; apical limbus broad. Legs simple, angulate; hind tarsi very slightly longer than the others.

Type *mera* Say.

Geographical distribution : A North American genus reported thus far only from the United States and Canada.

1. *maculata* Funkhouser, Ent. News XXVI : 3. 98 (1915). — Florida.

2. *marmorata* Say, Journ. Acad. Nat. Sci. Phila. VI : 301. 11 (1831). — Canada, northeastern and central U. S.

3. *mera* Say, Journ. Acad. Nat. Sci. Phila. VI : 310 (1831). — **Pl. 8, fig. 113.** — Canada, United States.
tripartita Walker, List Hom. B. M. 576. 15 (1851).
majus Emmons, N. Y. Agr. Rept. V : 156 (1854).
strombergi Goding, Cat. Memb. N. A. 443 (1894).

4. *porphyrea* Fairmaire, Rev. Memb. 306. 4 (1846). — East. Canada, northeast. U. S.
picta Provancher, Pet. Faun. Can. III : 246. 2 (1886).

5. *stupida* Walker, List Hom. B. M. 577. 16 (1851). — Eastern Canada, northeastern U. S.
muskokensis Goding, Cat. Memb. N. A. 444. 145 (1874).
albopicta Buckton, Mon. Memb. 135 (1903).

6. *vera* Goding, Can. Ent. XXVII : 276 (1895). — Northeastern U. S.

129. GENUS TROPIDARNIS FOWLER

Tropidarnis Fowler, B. C. A. II : 60 (1895).

Characters : Fowler described this genus incorrectly in the subfamily Darninæ although his

figure for the type species clearly shows the petiolate apical cell of the tegmina which makes such an assignment impossible. Ball (1931) called attention to this fact and correctly placed the genus in the tribe Telamonini, not only on the basis of Fowler's figure and description but on the study of species of the genus which he had taken in Arizona.

The insects of this genus bear a strong superficial resemblance to the larger forms of *Cyrtolobus* but differ in having the metopidium broadly rounded without a raised carina, and in having the tegmina only about one-third exposed. Phylogenetically the genus is probably more closely related to *Archasia*, described as the next genus in this list. Head subquadrate, smooth, more than twice as wide as high; base sinuate and only slightly arcuate; eyes ovate; ocelli prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ broadly sinuate; clypeus semi-circular, extending not at all below inferior margins of genæ. Pronotum elevated but varying greatly in the shape of the crest, which is sometimes high and tectiform and sometimes rounded; metopidium broadly rounded, sloping, wider than high; median carina obsolete on metopidium but usually strong on dorsum; humeral angles broad and rounded; sides of pronotum punctate but not ridged; posterior process tectiform, just about reaching the tips of the tegmina. Tegmina only about one-third exposed; basal area coriaceous and punctate; apical area hyaline; three longitudinal veins proceeding from the base of the corium and continuing to the apex; two discoidal cells of which the interior is the longer and dilated at the apex; apical limbus well developed. Legs simple; hind tarsi longest.

Ball has taken both nymphs and adults of the type species *tectigera* and reports that the species is extremely variable in size, height of crest and color.

Type *tectigera* Fowler.

Geographical distribution : The only known species of this genus have been found in Mexico and Arizona. Four species have been described and Ball believes that they are all one species, but we prefer to list three of them, at least until we have had more material for study.

1. *acutior* Fowler, B. C. A. II : 61. 2 (1895).	Mexico.
2. *pellicolor* Buckton, Mon. Memb. 114 (1903).	Unknown.
3. *tectigera* Fowler, B. C. A. II : 60. 1 (1895). — **Pl. 8, fig. 114.** *robustus* Buckton, Mon. Memb. 114 (1903).	Mexico, Arizona.

130. Genus ARCHASIA Stål

Archasia Stål, Bid. Hem. Syst. 556 (1867).

Characters : A very distinct genus characterized by the high, arcuate, foliaceous pronotum. Head subovate, broader than high; base highly arcuate and sinuate; eyes large and ovate; ocelli small, not conspicuous, much nearer to each other than to the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus indistinctly trilobed, the middle lobe extending for about one-third its length below the inferior margins of the genæ. Pronotum elevated in a high, arcuate, foliaceous dorsal crest, highest in front and gradually arcuate to near the end of the posterior process; metopidium vertical above the head or slightly overhanging in front, triangular, keeled; median carina strongly percurrent; humeral angles weak, rounded, not prominent; sides of pronotum punctate but not carinate, extended downward to cover about one-half of the tegmina; posterior process triangular, tectiform, sharply keeled, not reaching the tips of the tegmina. Tegmina about half exposed; hyaline; base sparingly punctate; five apical and two discoidal cells; apical limbus broad. Legs simple, angular in cross-section; hind tarsi slightly longer than the others.

Type *galeata* Fabricius.

Geographical distribution : A distinctly North American genus, entirely tree-inhabiting so far as is known, with three widely distributed species.

1. *belfragei* Stål, Bid. Memb. Kan. 250. 2 (1869). Canada, United States.
   canadensis Provancher, Petit. Faun. Can. III : 230 (1886).
2. *galeata* Fabricius, Syst. Rhyng. IV : 9 (1803). — **Pl. 8, fig. 115.** United States, Canada.
   auriculata Fitch, Cat. Hom. N. Y. 49. 676 (1851).
3. *pallida* Fairmaire, Rev. Memb. 308. 8 (1846). Eastern and southern U. S.

131. Genus INCOLEA Goding

Incolea Goding, Journ. N. Y. Ent. Soc. XXXIV : 280 (1926).

Characters : The group of four genera, of which *Incolea* is a representative, might perhaps be considered as worthy of being set apart as a separate tribe. Certainly they are very different in many respects from the *Telamona* group. We have great faith in wing venation as indicating phylogenetic development and these four genera all have only three apical cells in the hind wings. Moreover in general facies, the insects are small and delicate rather than large, heavy-bodied and robust as are the forms in the *Telamona* group. However, the four genera represented in this second division of the tribe are all apparently rare and since we have seen very few representatives of any of these genera, we should prefer to follow Goding in considering them a division of the *Telamonini*.

The genus *Incolea* was erected by Goding for the accommodation of two Ecuadorian species. We have not seen either of these species and no others species have been described for the genus. We can therefore do no more than to quote Goding's original generic description which is as follows :

> « Naviculate, with indistinct longitudinal elevated lines. Head triangular, about as long as wide beween the eyes, punctulate, base sinuate; eyes small; ocelli inconspicuous, slightly nearer eyes and above a line passing through their center; genæ sinuate; clypeus narrow, apex acute, strongly recurved.
>
> » Pronotum punctured, strongly depressed anteriorly, metopidium sloping; median carina distinct; humeral slightly prominent; posterior process compressed, tectiform, lateral margins deeply sinuate behind suprahumerals, then broadened and gradually acuminate to acute apex which reaches tips tegmina; dorsum lightly elevated at middle, sides with indistinct elevated longitudinal lines.
>
> » Tegmina with two longitudinal veins contiguous to and forked at middle, distant from costal and claval suture, interior basal cell with clavus vitreous occupying three-fourths width of tegmina, space between longitudinal veins and costa coriaceous, opaque, punctate; one discoidal cell between forks of ulnar vein, five apical cells, the vein between the first and second apical cells rarely deficient; wings with three apical cells, second apical cell truncate. Legs simple. The tegmina are largely covered by pronotum. »

Type *variegata* Goding.

Geographical distribution : Known only from Ecuador and represented by the following species :

1. *variegata* Goding, Journ. N. Y. Ent. Soc. XXXIV : 280 (1926). Ecuador.
2. *viridis* Goding, Journ. N. Y. Ent. Soc. XXXIV : 280 (1926). Ecuador.

132. Genus MENDICEA Goding

Mendicea Goding, Journ. N. Y. Ent. Soc. XXXIV : 279 (1926).

Characters : Another genus erected by Goding to accommodate a single Ecuadorian species. It is apparently very close to the preceding genus, differing chiefly in the fact that the longitudinal veins of the corium do not coalesce near the middle of the tegmina. The type species is the only one in the genus. We have not seen this species and while Goding, following his usual custom, does not figure the insect, so that we are unable to provide a Plate Figure for Mendicea, his description is quite full and should be sufficient for the recognition of the genus. The original description is as follows :

> « Head triangular, twice broader between the eyes than long, flat, strongly reclined toward apex which is obtusely angulate, base straight; eyes rather small; ocelli slightly nearer eyes; base of vertex briefly trisulcate, median sulcus the longer.
>
> » Pronotum convex, depressed anteriorly; base of metopidium strongly depressed and almost horizontal, then suddenly sloping upward and backward to summit, its base with a short, horizontal carina each side in front of a short sulcus; median carina percurrent, strong especially posteriorly, and several (six in type) smooth lateral carinæ extending from near base to apex, between them strongly and distinctly punctured; humerals barely evident, but acute; posterior process convex, a transverse depression at base which extends to lateral margins, thereafter arcuate and very lightly elevated at middle, posterior half tectiform, seen from above strongly sinuate at base, then lightly dilated and gradually acuminate to the acute apex which is as long as tegmina.
>
> » Tegmina almost completely covered by sides of pronotum, colorless vitreous; corium emitting two longitudinal veins from base, contiguous but not united for half their length, distant from costa the space between coriaceous, opaque and punctured, radial vein forked at middle enclosing the small only discoidal cell, ulnar vein simple not forked, fourth apical cell and interior basal cell with clavus occupying three-fourths of width of tegmina; one discoidal and four apical cells, free apical margin rather broad; wings with three apical cells, second cell sessile base truncate.
>
> » Legs slender, with three or four spines in exterior angle, tarsi equal. »

Type *scaphoidea* Goding.

Geographical distribution : The single species from Ecuador is the only representative of the genus.

1. *scaphoidea* Goding, Journ. N. Y. Ent. Soc. XXXIV : 279 (1926). Ecuador.

133. Genus APHETEA Fowler

Aphetea Fowler, B. C. A. II : 95 (1895).

Characters : A genus of small, inconspicuous insects with low, rounded pronotum which covers about half of the tegmina and a tectiform posterior process just about equalling in length the tegmina. Head subquadrate, twice as wide as high; base weakly sinuate; eyes small and ovate; ocelli very small, inconspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus much deflexed, extending for half its length below inferior margins of genæ. Pronotum convex, highest behind middle; dorsum rounded, usually depressed before middle; metopidium sloping, wider than high; median carina percurrent; humeral angles small and rounded; sides of pronotum punctate but not carinate, hollowed

out just behind humerals, extended downward to cover at least half of the tegmina; posterior process strong, heavy, tectiform, gradually acute, reaching just to tips of tegmina. Tegmina hyaline; somewhat less than half exposed; base and basal costal area coriaceous and punctate; five apical cells; no discoidal cell; apical limbus very narrow. Legs simple; all tarsi about equal in length.

Type *inconspicua* Fowler.

Geographical distribution : A genus of South and Central America. Although only five species have been described in this genus with a rather limited distribution, we believe that *Aphetea* is much larger and more widely distributed than the records would indicate, for we have seen at different times large amounts of undetermined material of this genus which when described will certainly extend its size and range. We believe that the fact that these insects are so small and inconspicuous has caused them to be generally overlooked. The five described species are as follows :

1. *affinis* Haviland, Zoologica VI : 3. 252 (1925).	British Guiana, Peru.
2. *bicolor* Goding, Journ. N. Y. Ent. Soc. XXXIV : 280 (1926).	Ecuador.
3. *inconspicua* Fowler, B. C. A. II : 95. 1 (1895). — **Pl. 8, fig. 116.**	Guatemala, Trinidad.
4. *maculata* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 163 (1927).	Peru.
5. *punctata* Funkhouser, Ann. Mus. Acad. U. S. S. R. XXVIII : 145 (1927).	Brazil.

134. Genus PHORMOPHORA Stål

Phormophora Stål, Hem. Fabr. II : 28 (1869).

Characters : Closely related to the preceding genus but distinguished by the two discoidal cells of the tegmina and the fact that the dorsum is usually distinctly depressed before the middle. Head subquadrate, twice as wide as high; base regularly sinuate; eyes small and globular; ocelli small; inconspicuous, nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus strongly deflexed, extending for half its length below inferior margins of genæ. Pronotum low, convex, highest behind middle; dorsum depressed before middle; metopidium straight, wider than high; median carina percurrent; humeral angles small and rounded; sides of pronotum punctate but not carinate, hollowed out behind humerals, extended downward to cover over half of the tegmina; posterior process heavy, tectiform, acute, just reaching the tegmina. Tegmina hyaline, clouded or semiopaque; less than half exposed; base coriaceous and punctate; five apical and two or more discoidal cells; apical limbus very narrow. Legs simple; all tarsi about equal in length.

Type *maura* Fabricius.

Geographical distribution : A Central and South American genus with the following described species :

1. *dorsata* Fabricius, Syst. Rhyng. 31. 18 (1803).	Brazil, Ecuador.
2. *luteostrigata* Goding, Bull. Brook. Ent. Soc. XXIII : 139 (1928).	Ecuador.
3. *maura* Fabricius, Syst. Rhyng. 30. 16 (1803). — **Pl. 8, fig. 117.**	Ecuador, Brazil, Peru.
4. *spreta* Goding, Journ. N. Y. Ent. Soc. XXV : 2. 170 (1927).	Jamaica.

GENERA OF THE TRIBE ACUTALINI (TRIBUS NOVUS)

I. *Corium with five apical cells*
 A. *Corium without discoidal cells* . . . . Acutalis Fairmaire.
 B. *Corium with discoidal cells*
  1. *Corium with one discoidal cell* . . . . Thrasymedes Kirkaldy.
  2. *Corium with two discoidal cells* . . . . Euritea Stål.
II. *Corium with four apical cells* . . . . Micrutalis Fowler.

135. Genus ACUTALIS Fairmaire

Acutalis Fairmaire, Rev. Memb. 496 (1846).

Characters : Small insects with triangular or elongate bodies, convex, unarmed pronotum, tegmina entirely free with distinct venation and showing five apical and no discoidal cells. Head subquadrate, twice as wide as high, smooth, convex; base nearly straight; eyes globular; ocelli small but conspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ smoothly and lightly sinuate; clypeus much deflexed, extending for half its length below inferior margins of genæ. Pronotum low, convex, without processes; dorsum nearly straight; metopidium sloping, wider than high; no median carina; humeral angles weak and rounded; sides of pronotum punctate but not ridged and impinging on tegmina; posterior process long, flattened, acute, tip often depressed and reaching beyond internal angles but not to the tips of the tegmina. Tegmina hyaline or semiopaque; base weakly punctate; veins strong; five apical cells; no discoidal cell; apical limbus broad. Hind wings with median apical cell sessile and truncate at base. Legs simple; hind tarsi longest.

Type *fusconervosa* Fairmaire.

Geographical distribution : This genus is found in most parts of North America, Mexico, Central America and South America and while the number of species is not large, the individuals are often very abundant.

1. *biguttula* Fairmaire, Rev. Memb. 498. 8 (1846).	Brazil, Colombia.
2. *flaviventris* Lethierry, Ann. Ent. Soc. France IV : 154 (1890).	Venezuela.
3. *flavozonata* Fairmaire, Rev. Memb. 497. 2 (1846).	Brazil, Peru.
4. *fusconervosa* Fairmaire, Rev. Memb. 498. 6 (1846)	Colombia, Mexico, Guatemala, Nicaragua, Panama.
5. *geniculata* Stål, Rio Jan. Hem. II : 32. 2 (1858).	Brazil.
6. *inornata* Ball, Proc. Biol. Soc. Wash. XVII : 119 (1905).	Southeastern U. S.
7. *litterata* Fairmaire, Rev. Memb. 498. 9 (1846).	Colombia.
8. *lucidus* Buckton, Mon. Memb. 177 (1903).	Bolivia.
9. *modesta* Stål, Rio Jan. Hem. II : 32. 5 (1858).	Brazil.
10. *nigrinervis* Fowler, B. C. A. II : 114. 2 (1895).	Mexico.
11. *plagiata* Stål, Rio Jan. Hem. II : 32. 1 (1858).	Brazil.
12. *semicrema* Say, Journ. Acad. Nat. Sci. Phila. VI : 242. 2 (1830). — **Pl. 8, fig. 118.**	Canada, United States.

anticonigra Fairmaire, Rev. Memb. 498. 7 (1846).
brunnea Provancher, Nat. Can. IV : 320 (1872).

13. *semipallida* Stål, Rio Jan. Hem. II : 32. 3 (1858). — Brazil.
14. *tartarea* Say, Journ. Acad. Nat. Sci. Phila. VI : 242. 1 (1830). — United States, Canada.
15. *terminalis* Walker, Ins. Saund. 76 (1858). — Brazil, Peru, Colombia.

136. Genus THRASYMEDES Kirkaldy

Thrasymedes (nom. nov.) Kirkaldy, Ent. XXXVII : 279 (1904).
Phacusa (preoccupied) Stål, Hem. Mex. 72 (1864).

Characters : Medium sized, elongate insects with low, convex, unarmed pronotum, triangular head, tegmina entirely free and showing five apical cells and one discoidal cell. Head triangular, very roughly sculptured; base arcuate; eyes large and globular; ocelli large, conspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus swollen, distended, extending for one-third its length below inferior margins of genæ. Pronotum low, convex, unarmed; dorsum straight; metopidium sloping, wider than high: median carina obsolete; humeral angles weak and rounded; sides of pronotum punctate but not ridged, slightly impressed behind humerals; posterior process slender, convex, apex sharp and reaching just beyond the internal angles of the tegmina. Tegmina entirely exposed; hyaline; five apical cells; one discoidal cell; apical limbus broad. Hind wings with median apical cell truncate at base. Legs simple; hind tarsi longest.

Type *flavomarginata* Stål.

Geographical distribution : *Thrasymedes* is found in Mexico, Central America and South America, where several species are quite abundant, but has not been reported north of Mexico. The described species are as follows :

1. *dubia* Fowler, B. C. A. II : 112. 5 (1895). — Guatemala, Panama.
2. *flavomarginata* Stål, Hem. Mex. 72. 436 (1864). — Mexico, Costa Rica.
3. *liniola* Walker, List. Hom. B. M. Suppl. 146 (1858). — **Pl. 8, fig. 119.** — Mexico, Ecuador, Colombia.
4. *major* Fowler, B. C. A. II : 111. 3 (1895). — Guatemala, Costa Rica, Mexico.
5. *nigricosta* Goding, Trans. Amer. Ent. Soc. LII : 109 (1926). — Ecuador.
6. *pallescens* Stål, Bid. Memb. Kan. 247. 1 (1869). — Mexico, Honduras, Colombia, Brazil, Ecuador, Peru.
7. *variata* Fowler, B. C. A. II : 111. 4 (1895). — Mexico, Guatemala.

137. Genus EURITEA Stål

Euritea Stål, Bid. Hem. Syst. 552 (1867).

Characters : Near the preceding genus but distinguished particularly by the fact that there are at least two complete discoidal cells in the tegmina. Head subovate, roughly sculptured; base arcuate; eyes large and globular; ocelli large, prominent, elevated, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ rounded: clypeus with tip rounded and extending very little below the inferior margins of the genæ to carry out the semicircular apical outline of the face made by the genæ. Pronotum low, weakly convex, unarmed;

dorsum straight; metopidium sloping, wider than high; median carina obsolete; humeral angles weak and rounded; sides of pronotum punctate but not ridged, distinctly impressed behind humerals; posterior process slender, subtriangular in section, very acute, extending beyond the abdomen and beyond the internal angles of the tegmina but not reaching the tips of the tegmina. Tegmina entirely exposed; hyaline; veins strong, curved and irregular; base, especially the claval area, distinctly coriaceous and punctate; five apical and two discoidal cells; apical limbus broad. Legs simple, subcylindrical; hind tarsi much longer than either of the other two pairs.

Type *personata* Stål.

Geographical distribution : This genus seems to have about the same range as *Thrasymedes*, being found in Mexico, Central America and South America but not reported from the United States.

1. *albifasciata* Funkhouser, Journ. N. Y. Ent. Soc. XXX : 24 (1922). — **Pl. 8, fig. 120.**	Brazil.
2. *capitata* Buckton, Mon. Memb. 175 (1903).	Ecuador.
3. *darnoides* Walker, List Hom. B. M. Suppl. 140 (1858).	Brazil.
4. *fasciata* Buckton, Mon. Memb. 175 (1903).	Unknown.
5. *munda* Walker, List Hom. B. M. Suppl. 152 (1858). *nigripes* Stål, Bid. Memb. Kan. 248. 3 (1869).	Mexico, Guatemala.
6. *personata* Stål, Bid. Memb. Kan. 247. 2 (1869).	Colombia, Mexico.

138. Genus MICRUTALIS Fowler

Micrutalis Fowler, B. C. A. II : 116 (1895).

Characters : Small inconspicuous insects with subtriangular bodies, free tegmina with indistinct venation but showing four apical cells in the corium. The genus has often been confused with *Acutalis* and the synonymy of some of the species of both genera is still somewhat in doubt, but the smaller size, very indistinct venation, and the four apical cells of the tegmina should be sufficient to enable *Micrutalis* to be distinguished.

Head subquadrate, smooth, convex, twice as broad as high; base feebly sinuate; eyes globular; ocelli small, inconspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum low, roundly flattened, triangular as seen from above; no dorsal processes of any kind; metopidium sloping, wider than high; no median carina; humeral angles weak and rounded; sides of pronotum punctate but not carinate; posterior process flattened, gradually acute, reaching just about to the internal angles of the tegmina. Tegmina entirely exposed; hyaline or semiopaque; veins indistinct; four apical cells; no discoidal cell; apical limbus broad. Hind wings with three apical cells, the median apical cell truncate at the base. Legs simple, subcylindrical; all tarsi about equal in length.

Type *ephippium* Burmeister.

Geographical distribution : *Micrutalis* is a large genus with its species widely distributed over the entire New World as is indicated by the following list :

1. *albivitta* Fowler, B. C. A. II : 121. 11 (1895).	Mexico.
2. *apicalis* Goding, Can. Ent. XXV : 52. 3 (1893).	West Indies.

3. *atrovena* Goding, Amer. Mus. Novit. 22 (1930).	Costa Rica.
4. *balteata* Fairmaire, Rev. Memb. 496. 1 (1846). *ballista* (sic) Buckton, Mon. Memb. 219. 25 (1903).	Colombia, Panama, Guatemala, Peru.
5. *bella* Goding, S. A. Memb. 293 (1929).	Ecuador.
6. *callangensis* Goding, Amer. Mus. Novit. 22 (1930).	Peru.
7. *calva* Say, Journ. Acad. Nat. Sci. Phila. V : 242 (1831). *melanogramma* Perty, Del. An. Art. Pl. 35, fig. 10 (1834). *flavipennis* Germar, Rev. Silb. III : 240 (1835). *illinoiensis* Goding, Can. Ent. XXV : 53 (1893).	United States, Canada.
8. *chapadensis* Goding, Amer. Mus. Novit. 23 (1930).	Brazil.
9. *discalis* Walker, List Hom. B. M. Suppl. 154 (1858).	Mexico.
10. *dorsalis* Fitch, Cat. Ins. N. Y. 52 (1851).	United States, Canada.
11. *dubia* Fowler, B. C. A. II : 119. 8 (1895).	Panama.
12. *ephippium* Burmeister, Rev. Silb. IV : 191. 13 (1836). — **Pl. 8, fig. 121.** *ferruginea* Fairmaire, Rev. Memb. 493. 3 (1846). *binaria* Fairmaire, Rev. Memb. 497. 3 (1846). *moesta* Stål, Rio Jan. Hem. II : 35. 8 (1858). *biplaga* Walker, Journ. Ent. I : 5. 318 (1862). *variabilis* Berg, Ann. Soc. Cien. Arg. XVI : 244. 302 (1883). var. : *mutibilis* Fowler, B. C. A. II : 117 (1895).	Colombia, Nicaragua, Guatemala, Mexico, Argentina, Brazil, British Guiana, Canal Zone, Peru.
13. *flava* Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 168 (1929).	Utah.
14. *lata* Goding, Amer. Mus. Novit. 22 (1930).	Peru.
15. *lugubrina* Stål, Rio Jan. Hem. II : 32. 6 (1858). var. : *parallela* Fowler, B. C. A. II : 120 (1895).	Brazil, Panama, Mexico, Guatemala.
16. *malleifera* Fowler, B. C. A. II : 118. 5 (1895).	Mexico.
17. *minutus* Buckton, Mon. Memb. 178 (1903).	Ecuador.
18. *nigrolineata* Stål, Hem. Mex. 72. 437 (1864).	Mexico.
19. *notatipennis* Fowler, B. C. A. II : 119. 7 (1895).	Mexico.
20. *occidentalis* Goding, Cat. Memb. N. A. 429. 97 (1894). *binotata* Goding. Cat. Memb. N. A 430. 99 (1894).	Western U. S.
21. *pallens* Fowler, B. C. A. II : 118. 4 (1895).	Mexico, Guatemala, Yucatan.
22. *parva* Goding, Cat. Memb. N. A. 429. 98 (1894).	Western U. S.
23. *punctifera* Walker, List Hom. B. M. Suppl. 153 (1858).	Brazil.
24. *stipulipennis* Buckton, Mon. Memb. 178 (1903).	Unknown.
25. *tartaredoides* Goding, Amer. Mus. Novit. 22 (1930).	Bolivia.
26. *tau* Goding, Amer. Mus. Novit. 23 (1930).	Peru.
27. *trifurcata* Goding, Can. Ent. XXV : 53. 2 (1893).	West Indies.
28. *viridicollis* Fowler, B. C. A. II : 118. 6 (1895).	Panama.
29. *zeteki* Goding, Bull. Brook. Ent. Soc. XXIII : 139 (1928).	Panama.

Subf. CENTROTINÆ Spinola

The subfamily Centrotinæ is the largest of all of the subfamilies of the Membracidæ. It contains more genera, more species, and probably more individuals than all of the other subfamilies combined.

Apparently it is the only subfamily represented in the Old World. Occasionally a species from Europe, Asia or Africa has been described and assigned to a genus in some other subfamily but in each instance dissection has proven that the insect has a complete and well developed scutellum even though it may be entirely hidden. The New World Centrotinæ, while represented by a considerable number of genera, are not nearly so conspicuous nor so abundant as are the New World species of the other subfamilies. They are usually smaller in size, less foliaceous and bizarre in appearance, and their numbers must be comparatively few, as they are seldom collected and are always meagerly represented in collections.

The Centrotinæ may be very definitely divided into New World and Old World forms. Not a single genus has yet been found which is common to both the eastern and the western hemisphere except in the case of a few species which are known to have been introduced on shipments of plants. While the new World and the Old World forms are undoubtedly closely related, both their natural structures and the somewhat more artificial characters which are often a convenience in constructing taxonomic keys, are remarkably distinct.

Therefore it is both natural and convenient to subdivide the Centrotinæ into the two great geograqhical groups as we are here doing in arranging the genera. Such an arrangement greatly simplifies the identification of tribes and genera, and until and unless cosmopolitan forms are discovered, it should prove entirely satisfactory.

TRIBES OF THE NEW WORLD CENTROTINÆ

I. *Pronotum without a posterior process* . . . . Abelini Tribus novus.

II. *Pronotum with a posterior process*

- A. *Clavus gradually acuminate from base to apex.* . . . . Acuminatini Goding.
- B. *Margins of clavus parallel or nearly so* . . . . Hebesini Goding.

GENERA OF THE TRIBE ABELINI (TRIBUS NOVUS)

I. *Apex of clavus obtuse and nearly truncate* . . . . Abelus Stål.

II. *Apex of clavus acuminate*

- A. *Base of head not tuberculate*
  1. *Head triangular; tegmina coriaceous* . . . . Stictodepsa Stål.
  2. *Head subquadrate; tegmina hyaline* . . . . Scytodepsa Stål.
- B. *Base of head sulcate in middle; tuberculate on each side*
  1. *Hind wings with two apical cells; pronotum unarmed.* . . . . Tropidaspis Stål.
  2. *Hind wings with four apical cells*

a. *Pronotum unarmed*
b. *Corium with seven or more apical cells* . . . . NICOMIA Stål.
bb. *Corium with not more than five apical cells*
c. *Corium with four apical cells and no discoidal cells* . . . . ENDOIASTUS Fowler.
cc. *Corium with five apical cells*
d. *Base of head bearing long, horizontal horns* . . . . . MINA Walker.
dd. *Base of head unarmed*
e. *Crest of scutellum low*. . . . . LOPHYRASPIS Stål.
ee. *Crest of scutellum elevated into an erect horn* . . . . GERRIDIUS Fowler.
aa. *Pronotum with erect processes or with suprahumeral horns*
b. *Pronotum without suprahumerals*
c. *An erect horn on the pronotum and another on the scutellum* . . LAMPROPTERA Germar.
cc. *A single elevation on the pronotum*
d. *Pronotum bearing a porrect horn*. . . . . OREKTHEN Funkhouser.
dd. *Pronotum with a crest only* . . . . MELIZODERES Blanchard.
bb. *Pronotum with suprahumerals* . . . . TOLANIA Stål.

139. GENUS ABELUS STÅL

Abelus Stål, Bid. Memb. Kan. 294 (1869).

Characters : Diminutive insects distinguished at once by the lack of a posterior process and the fact that the posterior end of the clavus is broad and obtuse. Head subquadrate, much broader than high; base straight; eyes large and globular; ocelli large, prominent, twice as far from each other as from the eyes and situated high up near the basal margin of the head; inferior margins of genæ nearly straight; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, without processes; metopidium vertical, convex, about as wide as high; median carina faintly percurrent; humeral angles strong, rounded, blunt; no posterior process; scutellum entirely exposed, triangular, flat, tip weakly bifid. Tegmina entirely exposed; hyaline with the base coriaceous and punctate; veins strong; five apical and three discoidal cells; apical limbus broad on anal margin. Legs simple, very slender; hind tarsi longest.

Type *luctuosus* Stål.

Geographical distribution : The two described species are both from South America.

1. *inermis* Lethierry, Ann. Ent. Soc. Belg. 155 (1890). Venezuela.
2. *luctuosus* Stål, Bid. Memb. Kan. 294. 1 (1869). — **Pl. 9, fig. 122.** Colombia.

140. GENUS STICTODEPSA STÅL

Stictodepsa Stål, Hem. Fabr. II : 58 (1869).

Characters : A monotypic genus erected by Stål to accommodate the Fabrician species *fuscata* characterized particularly by the triangular head and opaque tegmina and lacking a posterior process.

Note : Walker's genus *Narnia* has been placed in this tribe, but the type of this genus is apparently a cercopid.

We have not seen the single species of this genus and it has never been figured. Stål's description of the genus, however, is full and complete and should suffice for its recognition. The original description is as follows :

« Corpus parvum, elongatum, valde subcylindricum, convexum. Caput ante oculos productum, sensim angustatum, apice rotundato-truncatum et medio leviter incisum, sulco distincto percurrente longitudinali instructum; facie convexiuscula, supra medium sulco longitudinali instructa; fronte apice biimpressa; genis ultra basin lororum haud longe extensis, margine medio sinuatis, lateribus partia productæ anteocularis capitus convexis, in faciem et partem sursum vergentem sensim transientibus. Ocelli in margine capitis ante oculos positi et ad hos valde appropinquati, distinctissimi. Antennæ infra oculos et in medio laterum faciei insertæ. Thorax æque longus ac posterius latus, valde convexus, antrosum sensim nonnihil convexo-declivis, sexangularis, carina percurrente distincta media instructus, prope basin latissimus, antrorsum nonnihil angustatus, apice rotundatus, lateribus convexis, obtusissimis, in prostethium sensim transientibus, marginibus basali et lateralibus posticus æque longis, marginibus lateralibus anticis longissimis. Scutellum multo longius quam latius, acute triangulare, carina longitudinali instructum. Tegmina coriacea, oblonga, apice rotundata, apicem abdominis attingentia, opaca, venis obsoletis. Pedes breves; tibiis teretibus, inermibus, non nisi brevissime obsoletissimque setulosis vel pilosulis. »

Type *fuscata* Fabricius.

Geographical distribution : The habitat of the lone representative of the genus is indicated merely as « America meridionalis » with no definite locality given.

1. *fuscata* Fabricius, Syst. Rhyng. 68. 31 (1803). South America.

141. Genus SCYTODEPSA Stål

Scytodepsa Stål, Hem. Fabr. II : 57 (1869).

Characters : Tiny, inconspicuous insects, distinguished from those of the preceding genus by the subquadrate head and the hyaline tegmina. Head subquadrangular, about as broad as high, trilobed at the apex; base straight; eyes small, flattened; ocelli large, conspicuous, located in the upper outside corners of the head, very near the eyes and close to the basal margin; inferior margins of genæ rounded and protruding to produce with the clypeus the trilobed apical outline of the face; clypeus extending for one-third its length below inferior margins of genæ. Pronotum convex, without processes; metopidium straight, about as wide as high, deeply impressed on each side to produce a trilobed appearance; median carina strongly and sharply percurrent; humeral angles strong, swollen, rounded, blunt; no posterior process; scutellum entirely exposed, triangular, tectiform, sharply carinate above, tip acute. Tegmina entirely free; hyaline or translucent; broadly rounded at apex; five apical cells; no discoidal cells; no apical limbus. Legs simple, very slender; all tarsi about equal in length.

Type *exigua* Fabricius.

Geographical distribution : This seems to be a strictly South American genus with the distribution of the three known species as follows :

1. *exigua* Fabricius, Syst. Rhyng. 23. 36 (1803). — **Pl. 9, fig. 123.** Brazil, Argentina.
2. *magna* Goding, Trans. Amer. Ent. Soc. LII : 889. 104 (1926). Ecuador.
3. *tricarinata* Funkhouser, Journ. N. Y. Ent. Soc. XXV : 2. 163 (1927). Peru.

142. GENUS TROPIDASPIS STÅL

Tropidaspis Stål, Hem. Fabr. II : 56 (1869).

Characters : Small, elongate insects with a bituberculate head, no posterior process, convex unarmed pronotum, highly elevated scutellum and with only two apical cells in the hind wings. Head subquadrate, roughly sculptured, slightly broader than high; base highly elevated and bearing two large rounded lobes, deeply sulcate between; eyes large and globular; ocelli large, prominent, situated in extreme upper outer corners of the head at the lateral bases of the basal lobes; inferior margins of genæ very short and straight; clypeus very broad, flattened, expanded and foliaceous, extending for at least three-fourths its length below inferior margins of genæ, tip broadly rounded. Pronotum convex, without processes of any kind; extended downward in a flat plate behind the eyes; metopidium sloping, broader than high; median carina distinctly percurrent; humeral angles broad, greatly produced, rounded, blunt; scutellum highly elevated, tectiform, strongly and sharply carinate, triangular, about twice as long as its width at base, base swollen, tip gradually acuminate and extending just to the internal angles of the tegmina. Tegmina hyaline; tips broadly rounded; base coriaceous and punctate; veins strong and heavy; both corium and clavus entirely exposed; apical portion of clavus gradually acute; five apical and no discoidal cells; no apical limbus. Hind wings with only two apical cells and no discoidal cells. Legs simple, femora cylindrical, tibiæ angulate, hind tarsi longest and sometimes bearing accessory lateral spines.

Type *carinata* Fabricius.

Geographical distribution : *Tropidapsis* seems to have a rather wide distribution in Central and south America as follows :

1. *affinis* Fowler, B. C. A. II : 169. 1 (1897).	Panama, Trinidad, West Indies.
2. *carinata* Fabricius, Syst. Rhyng. 21. 29 (1803). — **Pl. 9, fig. 124.**	Brazil, Peru, British Guiana.
3. *cornuta* Haviland, Zoologica VI : 3. 261 (1925).	British Guiana.
4. *jubata* Goding, Trans. Amer. Ent. Soc. LII : 889. 104 (1926).	Ecuador.
5. *minor* Haviland, Zoologica VI : 3. 259 (1925).	British Guiana, Ecuador.
6. *truncaticornis* Goding, Journ. N. Y. Ent. Soc. XXV : 187 (1927).	Dutch Guiana, British Guiana, Brazil, Panama, Guatemala.

143. GENUS NICOMIA STÅL

Nicomia Stål, Ofv. Vet. Akad. Forh. XXIV : 249 (1858).

Characters : Small, inconspicuous insects without a posterior process, with a convex unarmed pronotum and characterized particularly by the large number of irregular cells in the tegmina of which seven or more are on the apical margin. Head subquadrate, wider than high, somewhat deflexed; base bituberculate, notched in middle; eyes large, prominent, globular; ocelli small, much farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ straight; clypeus extending for about half its length below inferior margins of genæ. Pronotum convex, without processes of any kind; metopidium sloping, wider than high; median carina percurrent; humeral angles prominent, rounded, blunt; posterior end of pronotum truncate and then slightly pro-

duced on each side of the scutellum; scutellum elongate, narrowing toward the apex which is obtuse or truncate. Tegmina entirely exposed; hyaline; veins strong; seven or more apical cells and two discoidal cells; apical limbus obsolete. Legs simple; tibiæ triquerate; tarsi about equal in length.

Type *lemniscata* Stål.

Geographical distribution : A small genus with a limited distribution in the northern part of South America.

1. *cicadoides* Walker, Journ. Ent. I : 317 (1862). Brazil.
2. *interrupta* Stål, Ofv. Vet. Akad. Forh. 249. 2 (1858). Brazil.
3. *lemniscata* Stål, Ofv. Vet. Akad. Forh. 249. 1 (1858). Brazil.
4. *obliqua* Walker, List Hom. B. M. Suppl. 341 (1858). Brazil, Venezuela.
5. *retrospina* Lethierry, Ann. Ent. Soc. Fr. XVI : 155. 57 (1890). Venezuela.
6. *subfasciata* Stål, Ofv. Vet. Akad. Forh. 249. 3 (1858). Brazil, Venezuela.

144. Genus ENDOIASTUS Fowler

Endoiastus Fowler, B. C. A. II : 168 (1896).

Characters : Small, delicate, fragile insects with no posterior process, convex unarmed pronotum, strongly sulcate head and with semiopaque tegmina showing four apical and no discoidal cells. Head subquadrate, about as broad as high but with the length apparently exaggerated due to the basal lobes and the large clypeus; base elevated into two large lobes, deeply notched between; eyes small, laterally flattened; ocelli very small, inconspicuous, situated in the upper corners of the head, very close to the base and to the eyes; inferior margins of genæ short and straight; antennæ unusually well developed, inserted below and slightly in front of the eyes; clypeus broad, expanded, extending for three-fourths its length below inferior margins of genæ. Pronotum convex, without processes of any kind, strongly keeled; metopidium sloping, broader than high; median carina strongly percurrent; scutellum entirely exposed, triangular, a little longer than the breadth at the base, base convex, apex flat, very weakly carinate. Tegmina coriaceous, semiopaque, broadly rounded at tips; four apical and no discoidal cells; no apical limbus. Legs simple, very slender; all tarsi about equal in length.

Type *caviceps* Fowler.

Geographical distribution : Represented by two species, both apparently quite rare.

1. *cayiceps* Fowler, B. C. A. II : 168. 1 (1896). — **Pl. 9, fig. 125.** Guatemala, Nicaragua, Ecuador.
2. *productus* Osborn, Zoologica III : 233 (1921). British Guiana.

145. Genus MINA Walker

Mina Walker, List Hom. B. M. Suppl. 165 (1858).

Characters : Curious little Centrotinæ without posterior process, with convex unarmed pronotum, tegmina with five apical cells, and distinguished particularly by the horizontal extensions on the base of the head Head subquadrate, broader than high; base elevated and bearing long horizontal horns; eyes large and globular; ocelli large, conspicuous, farther from each other than from the eyes and

situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus broad, flattened, subfoliaceous, extending for three-fourths its length below inferior margins of genæ. Pronotum convex, without processes; metopidium sloping, about as broad as high; no median carina; humeral angles weak and rounded; scutellum entirely exposed, swollen at base, acuminate or spinelike at tip, strongly carinate. Tegmina hyaline; entirely free; tips broadly rounded; five apical and two discoidal cells; apical limbus extremely narrow. Hind wings with four apical cells and one discoidal cell. Legs simple, hind legs much longer than the others; hind tarsi longest.

Type *aliena* Walker.

Geographical distribution : This genus is known only from tropical South America.

1. *aliena* Walker, List Hom. B. M. Suppl. 165 (1858). Brazil.
2. *spinosa* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII: 4. 409 (1930). — **Pl. 9, fig. 126.** Ecuador.
3. *stylata* Buckton, Mon. Memb. 212 (1903). Brazil.

146. Genus LOPHYRASPIS Stål

Lophyraspis Stål, Hem. Fabr. II : 55 (1869).

Characters : Close to the preceding genus but distinguished by the unarmed head, and differing from the following genus (*Gerridius*), with which it has often been confused, by the absence of the erect horn on the scutellum. Head subquadrangular, about as broad as high; base strongly arcuate; eyes large, globular; ocelli much farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus broad and flattened and extending for at least half its length below the inferior margins of the genæ. Pronotum roundly convex, without processes of any kind; metopidium sloping, about as wide as high; median carina percurrent; humeral angles small and rounded; scutellum triangular, longer than its width at base, strongly carinate above, acute at tip. Tegmina hyaline; entirely exposed; five apical and two discoidal cells; apical limbus obsolete. Hind wings with four apical cells. Legs simple; hind tarsi longest.

Type *vittata* Olivier.

Geographical distribution : A South American genus represented by the following species :

1. *parvimosca* Stoll, Nat. Cicad. 63 (1780). Venezuela.
2. *pigmæa* Fabricius, Syst. Rhyng. 44. 57 (1803). Dutch Guiana, British Guiana.
3. *scutellata* Fabricius, Syst. Rhyng. 44. 58 (1803). Brazil.
4. *vittata* Olivier, Enc. Meth. V : 762. 65 (1790). Brazil, Colombia.

147. Genus GERRIDIUS Fowler

Gerridius Fowler, B. C. A. II : 165 (1896).

Characters : We have previously (Funkhouser 1927) considered this genus a synonym of *Lophyraspis* but we are now convinced that the two genera are distinct; the chief difference being that in Stål's genus the scutellum is merely strongly carinate while in *Gerridius* the scutellum is developed into a high, flattened horn. The specimens of *Gerridius* which we have seen are small, with unarmed prono-

tum and with enormously long hind legs. Head subquadrate, twice as broad as high; base elevated, thin, sinuate, margin depressed in middle; eyes globular, slightly flattened laterally; ocelli large, conspicuous, somewhat elevated, twice as far from each other as from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ straight; clypeus broad, flattened, subfoliaceous, extending for three-fourths its length below inferior margins of genæ. Pronotum convex, without processes of any kind; metopidium sloping, broader than high; no median carina; humeral angles obtuse, rounded; posterior half of scutellum elevated into a high, erect, laterally flattened horn which is more than twice as high as broad, with thin flattened anterior and posterior margins. Tegmina hyaline with strong veins; tips broadly rounded; interior claval area coriaceous and punctate; five apical and two discoidal cells; no apical limbus. Legs simple, very slender; hind legs at least twice as long as either of the other pairs; femora cylindrical, tibiæ angular in cross section; hind tarsi much the longest.

Type *scutellatus* Fowler.

Geographical distribution : This genus is found in both South and Central America but is represented by only three described species.

1. *abbreviatus* Baker, Can. Ent. XXXIX : 114 (1907).	Nicaragua.
2. *armata* Haviland, Zoologica VI : 3. 262 (1925).	British Guiana.
3. *scutellatus* Fowler, B. C. A. II : 166. 1 (1896). — **Pl. 9, fig. 127.** *fowleri* Haviland, Zoologica VI : 3. 261 (1895).	Panama, British Guiana, Ecuador.

148. GENUS LAMPROPTERA GERMAR

Lamproptera Germar, Rev. Silb. III : 261 (1835).

Characters : This genus represents a division of the Abelini in which the insects have a single horn on the pronotum, and *Lamproptera* is particularly distinguished by having not only a long sharp horn on the pronotal disc but another on the scutellum. Head with clypeus triangular; base highly elevated, bituberculate, weakly sulcate between the two lobes; eyes small and globular; ocelli small, inconspicuous, more than twice as far from each other as from the eyes and situated high up on the head, about on a line drawn through the upper margins of the eyes; inferior margins of genæ sloping and sinuate; clypeus very large, broad, flattened, extending for three-fourths its length below the inferior margins of the genæ, tip long and triangular, giving the face a distinctly triangular outline. Pronotum convex and bearing a single, long, erect, sharp, laterally flattened dorsal horn which is twice as high as its width at the base and has the anterior and posterior margins thin and sharp; metopidium vertical, broader than high; median carina percurrent; humeral angles weak and rounded; scutellum entirely exposed and bearing a sharp erect dorsal horn, almost exactly the same in shape and general appearance as that on the pronotum but considerably longer. Tegmina entirely free; hyaline with strong, colored veins; very broad; base narrowly coriaceous and punctate; tips broadly rounded; five apical and two discoidal cells; no apical limbus. Legs simple and very slender; femora cylindrical, tibiæ triquerate; hind legs very much longer than the others and hind tarsi more than twice as long as either of the other two pairs.

Type *capreolus* Germar.

Geographical distribution : This genus is known only from South America and in the case of the three Fabrician species the particular localities are not recorded.

1. *capreolus* Germar, Mag. Ent. IV : 33 (1821). *capra* (error) Burmeister, Hand. Ent. II : 131. 1 (1835).	Brazil.

2. *cristata* Stål, Hem. Fabr. II : 56 (1869). — **Pl. 9, fig. 128.** British Guiana.
3. *muscaria* Fabricius, Syst. Rhyng. 44. 60 (1803). South America.
4. *pygmæa* Fabricius, Syst. Rhyng 44. 57 (1803). South America.
5. *scutellata* Fabricius, Syst. Rhyng. 44. 58 (1803). South America.
6. *vacca* Germar, Mag. Ent. IV : 34. 6 (1821). Brazil.

149. Genus OREKTHEN Funkhouser

Orekthen Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 406 (1930).

Characters : Very small, inconspicuous insects having a stout porrect horn on the pronotum but with the scutellum unarmed. Head vertical, subquadrate, roughly sculptured, broader than high; base arcuate and without lobes; eyes large and globular; ocelli large, conspicuous, slightly elevated, nearly twice as far from each other as from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ strongly sloping downward and feebly sinuate; clypeus long and narrow, extending for half its length below inferior margins of genæ. Pronotum extended forward and upward into a stout heavy horn with rounded tip; metopidium projecting slightly forward over the head, triangular; median carina percurrent; humeral angles strong and blunt; scutellum entirely exposed, unarmed, triangular, base swollen, tip acuminate and just reaching the internal angles of the tegmina. Tegmina free; corium hyaline with strong punctate veins; clavus entirely coriaceous and punctate; tips of tegmina broadly rounded; five apical and two discoidal cells; no apical limbus. Legs simple, very slender; all tarsi about equal in length.

Type *osborni* Funkhouser.

Geographical distribution : The three described species of *Orekthen* are all from the extreme southern part of South America.

1. *darwini* Funkhouser, Ent. News XLV : 8. 203 (1934). Chiloë Island.
2. *osborni* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 407 (1930). Chile. **Pl. 9, fig. 129.**
3. *variegata* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 408 (1930). Chile.

150. Genus MELIZODERES Blanchard

Melizoderes Blanchard, Spin. Gay Hist. Chile 269 (1852).

Characters : Closely related to the preceding genus but differing in having only a crest on the pronotum rather than a stout horn and in having the tegmina strongly punctate on the basal half and hyaline on the apical half. The insects are small in size, slender and delicate in structure and inconspicuous in appearance. Head slightly deflexed, subtriangular; base arcuate and weakly sinuate; eyes large and globular; ocelli prominent, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ and continuing the line made by these margins to give the triangular outline to the face. Pronotum convex, elevated in a more or less pronounced crest; metopidium swollen, triangular, projecting somewhat forward; median carina percurrent; humeral angles broad and blunt; scutellum extirely exposed, unarmed, triangular, slightly longer than its width at base, base

convex, apex acute. Tegmina free; basal half coriaceous and punctate; apical half hyaline; five apical and two discoidal cells; no apical limbus. Legs simple; all tarsi about equal in length.

Type *carinatus* Blanchard.

Geographical distribution : The four known species are all from Chile.

1. *carinatus* Blanchard, Gay Hist. Chile 269 (1852). — **Pl. 9, fig. 130.** Chile.
2. *cuneata* Butler, Cist. Ent. II : 212 (1881). Chile.
3. *dohrni* Signoret, Ann. Ent. Soc. France III : 584 (1863). Chile.
4. *gayi* Blanchard, Gay Hist. Chile 286 (1852). Chile.

151. Genus TOLANIA Stål

Tolania Stål, Ofv. Vet. Akad. Forh. XXIV : 248 (1858).

Characters : This genus is distinguished by having suprahumeral horns but no posterior process. It is the only genus in the New World having this curious combination of characters. The insects are among the largest of the New World Centrotinæ, with robust bodies and long tegmina. Head subquadrate, twice as broad as high; base sinuate, depressed in the middle; eyes large, ovate, protruding; ocelli large, conspicuous, equidistant from each other and from the eyes and situated below a line drawn through centers of eyes; inferior margins of genæ straight, sloping downward and inward; clypeus indistinctly trilobed, the median lobe extending for half the length of the clypeus below the inferior margins of the genæ. Pronotum convex and bearing a pair of suprahumeral horns which vary in length and in sharpness but are always prominent; metopidium vertical, broader than high; median carina percurrent; humeral angles heavy and blunt; scutellum entirely exposed, subquadrate, about twice as long as broad, swollen at base, flat on apical two-thirds, weakly carinate; tip blunt and regularly rounded. Tegmina free; hyaline; base broadly coriaceous and punctate; tips rounded; veins inclined to be spinose; seven apical and no discoidal cells; apical limbus very narrow. Legs simple; femora cylindrical, tibiæ triquerous; hind legs longest.

Type *semipellucida* Stål.

Geographical distribution : A genus with a limited number of species but rich in numbers of individuals and widely distributed over Mexico, Central America and the northern part of South America.

1. *armata* Stoll, Cigal. 90 (1780). Brazil, Colombia.
   fraterna Stål, Rio Jan. Hem. II : 37. 3. (1858).
2. *cristata* Lethierry, Ann. Soc. Ent. France 155. 55 (1890). Brazil.
3. *fasciata* Walker, List Hom. B. M. 1147 (1851). Brazil, Venezuela.
   humilis Walker, List Hom. B. M. Suppl. 161 (1858).
4. *obscurus* Germar, Rev. Silb. III : 258 (1835). Brazil.
   felinus Germar, Rev. Silb. III : 259 (1835).
5. *obtusa* Fowler, B. C. A. II : 166 (1896). Guatemala, Panama, Yucatan, Honduras.
6. *opponens* Walker, List Hom. B. M. Suppl. 159 (1858). — **Pl. 9, fig. 131** Mexico, Guatemala, Panama, Yucatan, Brazil, British Guiana.

Note : Two genera, *Eustollia* Goding and *Williamsiana* Goding, have been described and have appeared in the literature of the family as belonging to the Tribe Abelini. Neither of these are Membracidæ.

7. *punctata* Metcalf and Bruner, Memb. Cuba 213 (1925). Cuba.

8. *semipellucida* Stål, Ofv. Vet. Akad. Forh. XXIV : 249 (1858). Brazil.
semilucida (error) Goding, Amer. Mus. Novit. 1 (1930).

9. *scutata* Stål, Rio Jan. Hem. II : 36. 1 (1858). Brazil.
femoralis Stål, Rio Jan. Hem. II : 37. 2 (1858).

10. *walkeri* (nom. nov.) Goding, Ann. Ent. Soc. Amer. XXIV : 935 (1931). Brazil.
fasciatus (preoccupied) Walker, List Hom. B. M. Suppl. 161 (1858).

GENERA OF THE TRIBE ACUMINATINI GODING

I. *Venation of tegmina irregular and reticulate*

- A. *Dorsum straight; tibiæ slightly dilated* . . . . POSTANOMUS nom. nov.
- B. *Dorsum sinuate; tibiæ simple*
  - 1. *Posterior process with two or three nodes; unarmed above humeral angles.* CENTRODONTUS Goding.
  - 2. *Posterior process with a single arcuate elevation; females with suprahumeral horns* . . . . TYLOCENTRUS Van Duzee.

II. *Venation of tegmina normal*

- A. *Posterior process close to scutellum*
  - 1. *Corium with five apical cells*
    - a. *Tibiæ dilated; corium with one discoidal cell*
      - b. *Pronotum gibbous and convex*
        - c. *No suprahumerals* . . . . LIRANIA Stål.
        - cc. *Suprahumerals present* . . . . FLEXOCENTRUS Goding.
      - bb. *Pronotum elevated and compressed*
        - c. *Pronotum a large reticulated, inflated sac* . . . . . . ŒDA Amyot and Serville.
        - cc. *Pronotum not an inflated vesicle*
          - d. *Pronotum elevated anteriorly into a bilobed or dilated process.* . . . . LYCODERES Germar.
          - dd. *Pronotum leaf-like* . . . . STEGASPIS Germar.
    - aa. *Tibiæ simple; corium with two or more discoidal cells*
      - b. *Corium with two discoidal cells; tegmina hyaline* . . . . . GLISCHROCENTRUS Fowler.
      - bb. *Corium with three discoidal cells; tegmina semi-opaque*
        - c. *Posterior process very slender; shorter than the abdomen* . . MICROCENTRUS Stål.
        - cc. *Posterior process robust; as long as the abdomen.* . . . . CENTRUCHOIDES Fowler.
  - 2. *Corium with four apical cells*
    - a. *Pronotum bearing elevated globular spines* . . . . BOCYDIUM Latreille.
    - aa. *Pronotal process not bearing inflated globules* . . . . STYLOCENTRUS Stål.
- B. *Posterior process high above scutellum.*
  - 1. *Posterior process trispinose.* . . . . SMERDALEA Fowler.
  - 2. *Posterior process with toothed elevated node* . . . . DONTONODUS Funkhouser.

Note : Goding placed his genus *Euwalkeria* in this tribe but that genus belongs in the family Æthalionidæ. Likewise the genus *Acanthicus* Laporte has been included in this group, but this genus cannot stand since it was erected on immature forms.

152. Genus POSTANOMUS nom. nov.

Postanomus (nom. nov.) Here proposed.
Anomus (preoccupied) Fairmaire, Rev. Memb. 522 (1846).
Eteoneus (preoccupied) Kirkaldy, Ent. XXXVII : 279 (1904).

Characters : The insects of this genus stood for many years under Fairmaire's original name « Anomus »; however, Kirkaldy in 1904 called attention to the fact that this name was preoccupied and proposed the name « Eteoneus »; we now find that Distant in 1903 used « Eteoneus » for a genus of the Tingitidæ and we are therefore proposing « Postanomus » as a new name.

The genus is characterized by the irregular and reticulate venation of the tegmina, the absence of well developed suprahumerals, the straight dorsum and the slightly dilated tibiæ. Head subquadrate, twice as broad as high; base arcuate; eyes large and ovate; ocelli not conspicuous, farther from each other than from the eyes and situated somewhat above a line drawn through centers of eyes; inferior margins of genæ sloping, nearly straight, thin and sharp; clypeus extending for half its length below the inferior margins of the genæ. Pronotum convex, without suprahumerals but sometimes showing slight tuberosities above the humeral angles; metopidium sloping,broader than high; median carina faint; sides of pronotum ridged; dorsum straight; posterior process straight and impinging on tegmina; scutellum narrowly exposed on each side. Tegmina entirely exposed; subcoriaceous and punctate; venation very irregular, showing at least three discoidal cells and a large number of small apical cells; apical limbus very narrow. Legs short and slender; femora cylindrical, tibiæ somewhat flattened, subfoliaceous, distinctly dentate; hind tarsi longest.

Type *reticulatus* Fairmaire.

Geographical distribution ; Only two species have been described in this genus, both from Brazil.

1. *cornutulus* Stal, Rio Jan. Hem. II : 34. 1 (1858). Brazil.
2. *reticulatus* Fairmaire, Rev. Memb. 522. 1 (1846). Brazil.

153. Genus CENTRODONTUS Goding

Centrodontus Goding, Ent. News III : 201 (1892).
Tuberculocentrus Goding, Can. Ent. XXVII : 275 (1895).

Characters : Diminutive, inconspicuous insects, characterized by the reticulate tegmina, sinuate dorsum, unarmed anterior rounded pronotum and short posterior process. Head subtriangular, roughly sculptured, deflexed; base weakly and gradually sinuate and arcuate; eyes small and ovate; ocelli large, conspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping; clypeus blunt, extending for half its length below inferior margins of genæ. Pronotum convex, rounded, highest above humeral angles, unarmed; metopidium sloping, broader than high; median carina percurrent; humeral angles strong and rounded; sides of pronotum rough or tuberculate; posterior process not as long as the abdomen, dorsum sinuate and subnodulate; tip acute and just reaching the internal angles of the tegmina. Tegmina semi-opaque; base broadly coriaceous; venation very irregular and reticulate; tips rounded; no apical limbus. Legs simple; tarsi about equal in length.

Type *atlas* Goding.

Geographical distribution : The genus is known only from two American species both of which are very abundant in the western and southwestern part of the United States.

1. *atlas* Goding, Ent. News III : 110 (1892). — **Pl. 9, fig. 132.** Utah, New Mexico, Arizona, California.

2. *solus* Goding, Can. Ent. XXXVII : 275 (1895). California.

154. GENUS TYLOCENTRUS VAN DUZEE

Tylocentrus Van Duzee, Stud. N. A. Memb. 119 (1908).

Characters : This is a genus which, while very distinct, is difficult to place in a synoptic key because of the fact that the males are usually unarmed while the females generally show well developed suprahumeral horns. As has been mentioned in the descriptions of certain of the preceding genera and as will be seen in some of the following genera, the suprahumeral horns in the Membracidæ, while among the most striking and quickly noted of all of the characters of the insects, are among the most unreliable because of the variation within the species, as in the case of *Tylocentrus*, and because of the gradation from one species and even from one genus to another as has been noted in *Ceresa* and *Stictocephala*.

The insects representing *Tylocentrus* are small in size and irregular in general facies. Head subquadrangular, twice as broad as high, roughly sculptured; base sinuate and arcuate; eyes large and ovate; ocelli prominent, equidistant from each other and from the eyes and situated a little below a line drawn through centers of eyes; inferior margins of genæ sinuate, horizontal, flanged, edges turned outward; clypeus very long, subquadrate, extending for four-fifths its length below inferior margins of genæ, tip blunt. Pronotum convex, highest above humeral angles, usually armed with suprahumeral horns in the female, unarmed in the male, size, length and sharpness of the horns very variable; metopidium sloping, broader than high; median carina percurrent; humeral angles heavy and blunt; posterior process heavy, usually depressed at the base and strongly tectiform before apex which is acute and extends a little beyond the internal angles of the tegmina; scutellum well exposed on each side. Tegmina semi-opaque; base broadly coriaceous; venation very irregular and reticulate; tips rounded; apical limbus narrow. Legs simple; femora cylindrical, tibiæ triquerate; hind tarsi longest.

Type *reticulatus* Van Duzee.

Geographical distribution : The two species represented in *Tylocentrus* seem to have a rather limited distribution in southwestern United States and northern Mexico.

1. *quadricornis* Funkhouser, Ent. News XXX : 8. 217 (1919). Arizona, Lower California, Mexico.

2. *reticulatus* Van Duzee, Stud. N. A. Memb. 119 (1908). — **Pl. 9, fig. 133.** Texas, Arizona, Utah, Nevada.
   felinus Goding, Trans. Amer. Ent. Soc. LII : 889. 105 (1926).

155. GENUS LIRANIA STÅL

Lirania Stål, Rio Jan. Hem. II : 36 (1860).

Characters : This genus, which is known only from the type species, is unknown to us and so far as we know has never been recognized since its original description. It has been mentioned only

three times in the literature of the family since Stål's publication of the Rio Janeiro paper and all of these references are merely catalogue listings.

However, Stål's description is fairly complete and seems to indicate a distinct genus and we are therefore accepting it on his authority. Stål considers *Lirania* as closely related to *Lycoderes* and gives the following description :

« Caput levissime subreclino-declivum, subtriangulare, apice inflexum, basi supra ocellos tuberculis duobus instructum. Thorax anterius gibbus, supra scutellum utrimque valde sinuatus, retrorsum processum angustum acutum, carina usque ad apicem thoracis antrorsum producta instructum, clavo nonnihil breviorem, emittente. Tegmina clavo areolis quattuor basalibus, unica discoidali et quinque apicalibus, rhomboidalibus, instructo. Pedes mediocres, tibiæ triquetris, utrimque leviter dilatatis. »

We have attempted to incorporate the above mentioned characters in our taxonomic key and believe that they should be sufficient for the recognition of the genus.

Type *bituberculata* Stål.

Geographical distribution : The single species of the genus is from South America.

1. *bituberculata* Stål, Rio Jan. Hem. II : 36. 1 (1860). Brazil.

156. Genus FLEXOCENTRUS Goding

Flexocentrus Goding, Trans. Amer. Ent. Soc. LII : 106 (1926).

Characters : Medium sized insects with well developed suprahumeral horns, the posterior process impinging on the scutellum, slightly dilated tibiæ, and corium with five apical cells and one discoidal cell. Head subquadrate, twice as wide as long, deflexed; base strongly arcuate and feebly sinuate; eyes large, protruding, globular; ocelli very large, prominent, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sinuate and projecting slightly outward; clypeus extending for about half its length below the inferior margins of the genæ. Pronotum convex, highest above humeral angles; suprahumeral horns well developed but varying in size and structure; metopidium vertical, about as broad as high; median carina percurrent; humeral angles large, prominent, triangular, blunt; posterior process slender, sinuate, tectiform, impinging on tegmina, tip acute and reaching to the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, hyaline, base broadly coriaceous and punctate; tips roundly truncate; veins irregular; five apical cells; one discoidal cell; no apical limbus. All tibiæ more or less dilated; all tarsi about equal in length.

Type *felinus* Haviland.

Geographical distribution : The two described species are both from British Guiana, South America.

1. *brunneus* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 410 (1930). — **Pl. 9, fig. 134.** British Guiana.
2. *felinus* Haviland, Zoologica VI : 3. 257 (1925). British Guiana.

157. Genus ŒDA Amyot and Serville

Œda Amyot and Serville, Hémip. 546 (1843).

Characters : This is one of the most remarkable of all of the genera of the family and the structure of the insects is so grotesque and bizarre as to differentiate them at once not only from all other

Membracidæ but from any other insects in the world. The distinctive characteristic is of course the enormously swollen, inflated, reticulated, sac-like pronotum.

Head triangular and trilobed; base nearly straight; eyes large, globular, protruding; ocelli very large, conspicuous, elevated, more than twice as far from each other as from the eyes and situated far above a line drawn through centers of eyes, very close to the basal margin of the head; inferior margins of genæ modified into distinct, triangular, pointed lobes; clypeus extending for half its length below inferior margins of genæ; base of beak expanded into a broad flattened plate. Entire pronotum developed into a large, reticulated, swollen, hollow sac with a honey-comb appearance which extends forward over the head and backward almost to the tips of the tegmina, impinging on the tegmina throughout its inferior margin; no definite metopidium; no definite median carina; humeral angles weak and rounded; no definite posterior process; scutellum not visible. Tegmina broad, hyaline; base narrowly semi-opaque; tips broadly rounded; veins strong; five apical cells; one discoidal cell; apical limbus well developed. Hind wings with four apical and no discoidal cells. Legs simple and fragile; tibiæ slightly dilated; tarsi about equal in length.

Type *inflata* Fabricius.

Geographical distribution : The three Brazilian species here listed are the only ones described for the genus.

1. *hamulata* Stål, Hem. Fabr. II : 52 (1869). Brazil.
2. *inflata* Fabricius, Mant. Ins. II : 262. 1 (1787). — **Pl. 9, fig. 135.** Brazil.
   inermis Fairmaire, Rev. Memb. 506. 2. (1846).
   frondosa Buckton, Mon. Memb. 206 (1903).
3. *informis* Westwood, Ann. Nat. Hist. 119 (1842). Brazil.

158. Genus LYCODERES Germar

Lycoderes Germar, Rev. Silb. III : 259 (1835).
Corythophora Stål, Hem. Fabr. II : 53 (1869).
Lophucha Stål, Hem. Fabr. II : 54 (1869).
Rhyparoptera (part) Stål, Hem. Fabr. II : 54 (1869).

Characters : A very distinct genus characterized by the semi-foliaceous pronotum which is elevated into a compressed, bilobed or dilated anterior process. Head subfoliaceous, subquadrate, about as wide as high; base arcuate; eyes laterally flattened; ocelli large, prominent, twice as far from each other as from the eyes and situated far above a line drawn through centers of eyes, near the upper margin of the head; inferior margins of genæ flattened, angular, protruding forward; clypeus weakly trilobed, projecting for one-third its length below inferior margins of genæ. Pronotum subfoliaceous, much flattened laterally, elevated in front into a flattened horn which is dilated or bilobed at the tip; no definite metopidium, the front of the pronotum gradually merging into the anterior surface of the horn; median carina usually obsolete on the metopidium and front of the horn but strong on the back of the horn and on the dorsum; humeral angles weak and rounded; sides of pronotum punctate and often ridged; posterior process tectiform, extending to the internal angles of the tegmina; scutellum hardly visible. Tegmina entirely exposed, translucent; basal and costal margins coriaceous and punctate; apex more or less punctate; five apical cells; one discoidal cell; no apical limbus. Tibiæ of all of the legs distinctly flattened; tarsi about equal in length.

Type *hippocampus* Fabricius.

Geographical distribution : South America is the principal home of this genus but a few species have been reported from Central America and from Mexico.

1. *angustata* Buckton, Mon. Memb. 201 (1903).	Brazil.
2. *burmeisteri* Fairmaire, Rev. Memb. 525. 8 (1846). *fissa* Walker, List Hom. B. M. 485. 26 (1851) *læta* Walker, List Hom. B. M. 494. 42 (1851).	Brazil.
3. *capitata* Buckton, Mon. Memb. 203 (1903).	Brazil, Colombia.
4. *emarginatus* Fabricius, Syst. Rhyng. 14. 35 (1803). *flexuosa* Fabricius, Syst. Rhyng. Index 16 (1803).	Brazil, Venezuela.
5. *furca* Fairmaire, Rev. Memb. 524. 6 (1846).	Brazil.
6. *fuscus* Amyot and Serville, Hémip. 551 (1843). *bellicosa* Walker, List Hom. B. M. Suppl 165 (1858).	Brazil, Colombia, Nicaragua.
7. *gaffa* Fairmaire, Rev. Memb. 524. 7 (1846). — **Pl. 9, fig. 136.** *latipennis* Walker, List Hom. B. M. 607. 20 (1851).	Brazil, Ecuador.
8. *galeritus* Lesson, Ill. Zool. Pl. 56 (1831). *lobatus* Stål, Rio Jan. Hem. II : 34. 3 (1860). *walbergi* Stål, Rio Jan. Hem. II : 35. 4 (1860).	Brazil.
9. *gladiator* Germar, Rev. Silb. III : 310 (1835). *subminax* Walker, Journ. Ent. 316 (1862). *torta* Buckton, Mon. Memb. 202 (1903). *fuscata* Buckton, Mon. Memb. 204 (1903).	Brazil.
10. *hippocampus* Fabricius, Syst. Rhyng. 20. 22 (1803). *ancora* Germar, Mag. Ent. IV : 32 (1821).	Brazil, British Guiana, Colombia, Peru.
11. *luctans* Stål, Rio Jan. Hem. II : 35. 10 (1860). *corniger* Stål, Rio Jan. Hem. II : 36. 12 (1860).	Brazil, Peru, Venezuela.
12. *minamen* Buckton, Mon. Memb. 51 (1903). *igniventer* Buckton, Mon. Memb. 200 (1903).	Ecuador, Brazil, Honduras, Mexico.
13. *mitratus* Germar, Rev. Silb. III : 311 (1835). *spinolæ* Fairmaire, Guer. Rev. Zool. 12 (1846).	Brazil, Colombia, British Guiana.
14. *petasus* Fairmaire, Rev. Memb. 525. 10 (1846).	Brazil.
15. *phasianus* Fowler, B. C. A. II : 164. 1 (1896).	Panama.
16. *pileolum* Fairmaire, Rev. Memb. 526. 11 (1846). *truncatulus* Stål, Rio Jan. Hem. II : 36. 11. (1860).	Brazil.
17. *prolixus* Stål, Rio Jan. Hem. II : 35. 9 (1860).	Brazil.
18. *serraticornis* Fowler, B. C. A. II : 165. 2 (1896).	Panama, Yucatan, Brazil, Peru.
19. *triangulata* Funkhouser, Journ. N.Y. Ent. Soc. XXVII : 4. 276 (1919).	Brazil.
20. *unicolor* Fairmaire, Rev. Memb. 525. 9 (1846).	Brazil.

159. Genus Stegaspis Germar

Stegaspis Germar, Rev. Silb. III : 231 (1835).

Characters : A genus of curious insects, often used by the Natural Selectionists as examples of protective imitation since the form certainly bears a remarkable resemblance to dried leaves, even

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Note : The Fabrician species *rhombea* has usually been considered as belonging to this genus, but it is very probably a Tettigoniid.

to the extent of occasionally showing margins which suggest that they have been chewed by phytophagous enemies. The pronotum is greatly elevated, flattened and foliaceous and the tibiæ are more or less dilated. Head subquadrate, about as broad as high, foliaceous, trilobed; base strongly arcuate; eyes much flattened laterally; ocelli conspicuous, twice as far from each other as from the eyes and situated near the basal margin of the head, high above a line drawn through centers of eyes; inferior margins of genæ extended into flattened rounded lobes; clypeus very narrow, forming the weak median lobe of the head and not extending below the inferior margins of the genæ. Pronotum elevated into a high, compressed, leaf-like irregular crest, usually brownish or greenish in color; no definite metopidium, the anterior margin of the pronotum rising directly above the head with little lateral expansion; median carina strongly percurrent; humeral angles weak, triangular, blunt; sides of pronotum punctate and irregularly ridged with reticulate carinæ; posterior process high, tectiform, reaching just about to the internal angles of the tegmina; scutellum very little exposed on each side. Tegmina broad, translucent; basal area coriaceous and punctate; apex obtusely triangular, truncate or rounded; veins prominent; five apical and two discoidal cells; no apical limbus. Tibiæ of all legs dilated; hind tarsi longest.

Type *frondita* De Geer.

Geographical distribution : A South American genus with one species in the West Indies.

1. *bracteata* Fabricius, Mant. Ins. II : 263. 7 (1787).	Brazil.
2. *folium* Olivier, Ent. Meth. VII : 668. 9 (1792).	Surinam. Brazil, Peru.
3. *fronditia* De Geer, Ins. III : 208 (1773).	Brazil.
4. *galeata* Walker, List Hom. B. M. 486. 29 (1851).	Brazil, Peru, British Guiana.
coacta Schmidt, Stet. Ent. Zeit. LXVII : 261 (1906).	
5. *insignis* Buckton, Mon. Memb. 59 (1903). — **Pl. 9, fig. 137.**	Brazil, Peru, Bolivia.
6. *lævipennis* Fairmaire, Rev. Memb. 527. 14 (1846).	Brazil, British Guiana, Peru.
7. *marginalis* Walker, List Hom. B. M. 479. 29 (1851).	Brazil.
8. *melanopetalus* Olivier, Enc. Meth. VII : 668. 7 (1792).	Surinam.
abdominalis Fabricius, Syst. Rhyng. 10. 19 (1803).	
9. *viridis* Funkhouser, Bull. Brook. Ent. Soc. X : 5. 104 (1915).	Trinidad.

160. Genus GLISCHROCENTRUS Fowler

Glischrocentrus Fowler, B. C. A. II : 161 (1896).

Characters : We have never seen the species *cucullatus* on which this genus was founded, and which is the only species in the genus, and can judge the genus only from the original description and figures. Fowler's description, while very short and not as complete as might be desired, seems to leave no doubt as to the validity of the genus and his figures are excellent. Goding (1927) considered this genus a synonym of Blanchard's *Melizoderes* but this cannot be correct since *Melizoderes* has no posterior process while Fowler not only figures this process but discusses it in his description of the type species. Fowler considered *Glischrocentrus* as closely related to both *Microcentrus* and *Ischnocentrus* Stål, and distinguishes it from the latter by the fact that in *Glischrocentrus* the posterior process touches the tegmina while in *Ischnocentrus* it is high above the tegmina. His description and figures, however, show more important differences, particularly in the wing venation and in the shape and character of the clavus,

and we are therefore considering *Glischrocentrus* as belonging to the Acuminatini and quoting Fowler's description and copying his figure for our characterizations. The original description is as follows :

« Very close to *Phaulocentrus* (*), but distinguished by having the forehead more even, the frontal tubercles very small, the eyes less prominent, and the pronotum without the ordinary central carina, and obtusely produced above the metopidium; the tegmina, moreover, have only two discoidal areas; the latter character, however, is somewhat difficult to distinguish in these genera. »

Type *cucullatus* Fowler.

Geographical distribution : The genus is known only from the type species from Chiriqui.

1. *cucullatus* Fowler, B. C. A. II : 161. 1. (1896). — **Pl. 9, fig. 138.** Panama.

161. Genus MICROCENTRUS Stål

Microcentrus Stål, Bid. Memb. Kan. 295 (1869).
Phaulocentrus Fowler, B. C. A. II : 159 (1896).

Characters : A genus of large, robust, heavy-bodied insects with a short posterior process lying close to the scutellum and with long, semiopaque tegmina showing five apical and three discoidal cells. Head subquadrate, twice as wide as high, greatly deflexed; base weakly arcuate with a pair of strong tubercles, one on each side of the median line; eyes ovate; ocelli prominent, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus broad and flat and extending for half its length below the inferior margins of the genæ. Pronotum roundly convex, sometimes with more or less well developed suprahumeral protuberances; metopidium nearly vertical, broader than high; median carina strongly percurrent; humeral angles heavy, triangular, blunt; posterior process very short, slender, sinuate, hollowed out on each side at the base, closely impinging on the scutellum; scutellum well exposed, triangular, base swollen, tip deeply notched in the center. Tegmina long, semiopaque; base narrowly coriaceous; veins strong and more or less punctate; five apical and three discoidal cells; tip acute ; no apical limbus. Femora cylindrical; tibiæ sometimes weakly dilated; hind tarsi longest.

Type *caryæ* Fitch.

Geographical distribution : This is primarily a North American genus. In the United States and Canada the individuals of the two commonest species are very abundant. The other representatives of the genus range as far southward as Central America but south of the United States the insects seem to be rare.

1. *auirtus* Ball, Proc. Biol. Soc. Wash. 46. 30 (1933). Arizona.
2. *caryæ* Fitch, Cat. Ins. N. Y. 52 (1851). — **Pl. 9, fig. 139.** Eastern Canada, eastern and central U. S.
3. *cornutus* Fowler, B. C. A. II : 160. 4 (1896). Mexico.
4. *lynx* Ball, Proc. Biol. Soc. Wash. 46. 29 (1933). Colorado.
5. *nicholi* Ball, Proc. Biol. Soc. Wash. 46. 30 (1933). Arizona.
6. *perdita* Amyot and Serville, Hémip. 577 (1843). Eastern, central, southern and western U. S.
   capra Goding, Can. Ent. XXV : 172 (1893).
   leibecki Goding, Can. Ent. XXV : 172 (1893).

(*) Now *Microcentrus*. W. D. F.

7. *pileatus* Fowler, B. C. A. II : 159. 1 (1896). Guatemala, Honduras.
8. *proximus* Fowler, B. C. A. II : 160. 2 (1896). Guatemala, Mexico, Yucatan.
9. *sordidus* Fowler, B. C. A. II : 160. 3 (1896). Mexico.

162. Genus CENTRUCHOIDES Fowler

Centruchoides Fowler, B. C. A. II : 161 (1896).

Characters : Large heavy-bodied insects with strong suprahumeral horns, a long robust posterior process and with long, semiopaque or translucent tegmina showing five apical and three (sometimes four) discoidal cells. Head subquadrate, about twice as broad as high, very roughly sculptured; base weakly arcuate, strongly sinuate and slightly tuberculate; eyes ovate, nearly twice as broad as high; ocelli prominent, elevated, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ irregularly sinuate; clypeus roughly, longitudinally ridged, extending for two-thirds its length below inferior margins of genæ. Pronotum convex and bearing a pair of strong, well-developed suprahumeral horns which are variable in length and in structure; metopidium nearly vertical, broader than high; median carina percurrent; humeral angles heavy, triangular, blunt; posterior process long, tectiform, reaching to the internal angles of the tegmina, impinging on the scutellum and on the tegmina; scutellum narrowly exposed on each side. Tegmina long, semiopaque or translucent; basal and costal areas coriaceous and punctate; five apical cells; three or four discoidal cells; tip pointed; no apical limbus. Legs simple; tibiæ not flattened; all tarsi about equal in length.

Type *laticornis* Fowler.

Geographical distribution : This genus is known only from Mexico and Central America and is represented by the following two species :

1. *laticornis Fowler*, B. C. A. II : 162. 1 (1896). Panama, Honduras.
2. *oppugnans* Walker, List Hom. B. M. Suppl. 160 (1858). — **Pl. 9, fig. 140.** Mexico, Yucatan.

163. Genus BOCYDIUM Latreille

Bocydium Latreille, Règ. Anim. II : 219 (1829).
Sphæronotus Laporte, Ann. Ent. Soc. Fr. I : 229 (1832).

Characters : One of the most remarkable of all of the genera of the Membracidæ and with structures as curious and bizarre as those of any insect of any family. The members of this genus are characterized particularly by the fact that the pronotum bears slender spines on which are located inflated and decorated globules of various numbers and sizes. Surely from the signs which are displayed above their heads, these must be the pawn-brokers among insects. These insects are usually small in size and delicate in structure. Head subtriangular, trilobed; base feebly sinuate, lowest in the center; eyes large and globular; ocelli large, prominent, elevated, three times as far from each other as from the eyes and situated close to the upper margin of the head, far above a line drawn through centers of eyes; inferior margins of genæ flattened and extended slightly forward; clypeus extended for half its length below the inferior margins of the genæ to form the central lobe of the trilobed inferior outline of the face. Pronotum convex and bearing a slender upright branched spine decorated with a number of

globules and usually with a long, curved, needle-like spine extending backward over the body; metopidium vertical, keeled, about as broad as high; humeral angles strong, heavy, triangular, blunt; median carina percurrent; scutellum entirely exposed, triangular, base swollen, tip acute. Tegmina long, narrow, hyaline; veins heavy and usually colored: base narrowly coriaceous and punctate; apex diagonally truncate; four or five apical and one or two discoidal cells; no apical limbus. Legs simple; all tarsi about equal in length.

Type *globulare* Fabricius.

Geographical distribution : A strictly South American genus, most of the species being known only from Brazil.

1. *bullifera* Goding, Amer. Mus. Novit. 4 (1930). Bolivia.
2. *germari* Guérin, Ic. Règ. Anim. 365 (1838). Brazil.
3. *globulare* Fabricius, Syst. Rhyng. 16. 3 (1803). — **Pl. 9, fig. 141.** Brazil.
4. *globuliferum* Pallas, Spicil. Zool. IX : 22 (1772). Brazil.
5. *glomiferum* Germar, Rev. Silb. III : 260. 2 (1835). Brazil.
6. *rufiglobum* Fairmaire, Rev. Memb. 508. 3 (1846). Brazil.
7. *tintinnabuliferum* Lesson, Ill. Zool. Pl. 55 (1831). Brazil.

164. Genus STYLOCENTRUS Stål

Stylocentrus Stål, Hem. Fabr. II : 49 (1869).

Characters : A very distinctive genus, similar to the preceding in having long spine-like processes on the pronotum but without the inflated globules. The insects are medium sized, and are delicate and fragile in structure. Head subquadrate, about as broad as high, trilobed, very roughly sculptured; base arcuate and bearing a pair of strong triangular tubercles; eyes very large and globular; ocelli large, prominent, twice as far from each other as from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ extended forward in broad flattened plates; clypeus long and narrow, extending for two-thirds its length below the inferior margins of the genæ. Pronotum convex, bearing a slender erect spine which is three-branched, the lateral branches extending outward and curving backward, the middle spine very slender, sinuate, extending backward with the tip reaching the tips of the tegmina; metopidium broader than high, modified to form the base of the erect spine which is deeply notched in front at the base; median carina not developed; humeral angles extended into short, sharp spines; scutellum entirely exposed, triangular, swollen at base, impinging on tegmina, tip acuminate. Tegmina semiopaque, coriaceous and punctate on basal two-thirds, hyaline on apical third, usually brightly colored; veins strong but irregular; four apical cells; one discoidal cell; apex diagonally truncate and with a narrow limbus on the anal margin. Legs simple, cylindrical, long and slender; hind tarsi longest.

Type *ancora* Perty.

Geographical distribution : The two species of the genus have a wide distribution over the northern part of South America and parts of Central America.

1. *ancora* Perty, Del. Anim. 179 (1834). — **Pl. 9, fig. 142.** Brazil, Colombia, Peru, Venezuela.
2. *championi* Fowler, B. C. A. II : 164. 1 (1896). Panama, Honduras, Costa Rica.

165. GENUS SMERDALEA FOWLER

Smerdalea Fowler, B. C. A. II : 162 (1896).

Characters : This genus is known only from the type species which is a large, rough, spinose insect characterized especially by the heavy, irregularly branched suprahumeral horns and the trispinose posterior process. Fowler's specific name is well chosen — it is a horrible looking insect. Head subtriangular, very roughly sculptured, inferior margin trilobed; base feebly sinuate with a nodular protuberance on each side of the median line; eyes large, protruding, ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated low on the face about on a line drawn through lower margins of eyes; inferior margins of genæ produced downward into short rounded lobes; clypeus very large, extending for half its length below the inferior margins of the genæ. Pronotum convex, bearing a pair of large, heavy, irregularly toothed suprahumeral horns and a long, rough, nodulate and spinose posterior process; metopidium sloping, broader than high; median carina percurrent; humeral angles large, triangular with spine-like tip; suprahumerals heavy, twice as long as the distance between their bases, extending outward and upward, decorated with an irregular series of long spine-like teeth; posterior process robust, rough, with a node at the base and a large apical swelling which is dentate above and ends in three heavy spines, extending as far backward as the internal angles of the tegmina; scutellum entirely exposed, long, heavy, swollen at base and with a dorsal node before the apex which is tectiform and then suddenly acuminate. Tegmina opaque, coriaceous and punctate on basal half, hyaline on apical half; veins heavy and usually pubescent; five apical cells; one discoidal cell; apex roundly truncate; no apical limbus. Legs simple, cylindrical; all tarsi about equal in length.

Type *horrescens* Fowler.

Geographical distribution : The single species of the genus has been reported only from Central America.

1. *horrescens* Fowler, B. C. A. II : 163. 1 (1896). — **Pl. 9, fig. 143.** Guatemala, Panama, Costa Rica.

166. GENUS DONTONODUS FUNKHOUSER

Dontonodus Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 407 (1930).
Tumeocauda Goding, Amer. Mus. Novit. 3 (1930).

Characters : Large, rough insects with heavy suprahumeral horns and an elevated toothed node on the posterior process. Head subquadrate, broader than high, very roughly sculptured; base high and sinuate and bearing a very large conical tubercle on each side of the median line; eyes ovate; ocelli large, conspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ extended forward in rounded lobes; clypeus large, flat, extended for three-fourths its length below the inferior margins of the genæ. Pronotum rough, convex, with large, triquerate, toothed suprahumeral horns, extending outward and upward and somewhat longer than the distance between their bases; metopidium vertical, broader than high; median carina percurrent; humeral angles large, robust, triangular, blunt; posterior process heavy, sinuate, with a high toothed lobe at the base and with the tip flattened and blunt and reaching just to the internal angles of the tegmina; scutellum well exposed, subtriangular, roughly ridged, tip notched. Tegmina semiopaque, coriaceous and pilose; veins irregular; five apical and two discoidal cells; tip

pointed; no apical limbus. Legs simple, femora cylindrical, tibiæ triquerate; all tarsi about equal in length.

Type *serraticornis* Funkhouser.

Geographical distribution : Of the two known species of this genus, one is from Central America and the other is from the United States.

1. *schæfferi* Goding, Amer. Mus. Novit. 3 (1930). — Arizona.
2. *serraticornis* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 408 (1930). — **Pl. 10, fig. 144.** — Costa Rica.

GENERA OF THE TRIBE HEBESINI GODING

I. *Pronotum bearing three long sharp spines* . . . . GONIOLOMUS Stål.
II. *Pronotum not trispinose*
  A. *Posterior process high above scutellum*
    1. *Exterior discoidal cell of corium stylate, base angulate.* . . . . BOÖCERUS Stål.
    2. *Exterior discoidal cell of corium sessile, base truncate*
      a. *Posterior process very short, not as long as abdomen*
        b. *Suprahumerals present* . . . . SPATHOCENTRUS Fowler.
        bb. *Suprahumerals absent* . . . . ISCHNOCENTRUS Fowler.
      aa. *Posterior process as long or longer than the abdomen*
        b. *Posterior process bearing an inferior median lobe* . . . . CAMPYLOCENTRUS Stål.
        bb. *Posterior process with no median lobe below*
          c. *Pronotum unicarinate* . . . . OPHICENTRUS Fowler.
          cc. *Pronotum tricarinate* . . . . PSILOCENTRUS Fowler.
  B. *Posterior process very close to scutellum*
    1. *Pronotum bearing suprahumeral horns*
      a. *Pronotum with high dorsal elevation* . . . . CENTRONODUS Funkhouser.
      aa. *Pronotum without a high dorsal elevation*
        b. *Suprahumerals and posterior process simple*
          c. *Posterior process very short, not as long as abdomen* . . PLATYCENTRUS Stål.
          cc. *Posterior process as long or longer than abdomen*
            d. *Scutellum visible at sides* . . . . ORTHOBELUS Stål.
            dd. *Scutellum entirely hidden* . . . . CALLICENTRUS Stål.
        bb. *Suprahumerals laminate; posterior process uncinate.* . . . . DAIMON Buckton.
    2. *Pronotum without suprahumeral horns*
      a. *Sides of scutellum visible*
        b. *Corium with two discoidal cells*
          c. *Hind wings with four apical cells*
            d. *Tegmina pubescent* . . . . AMBLYCENTRUS Fowler.
            dd. *Tegmina not pubescent* . . . . CENTRICULUS Fowler.
          cc. *Hind wings with three apical cells.* . . . . BRACHYBELUS Stål.

bb. *Corium with three discoidal cells*
c. *Posterior process much shorter than abdomen* . . . . . BRACHYCENTRUTUS Metcalf [and Bruner.
cc. *Posterior process as long as or longer than the abdomen*
d. *Clavus entirely exposed* . . . . MONOBELUS Stål.
dd. *Clavus partly covered by the pronotum*. . . . . . QUADRINARIA Goding.
aa. *Scutellum entirely concealed*. . . . . MARSHALLELLA Goding.

167. GENUS GONIOLOMUS STÅL

Goniolomus Stål, Bid. Memb. Kan. 294 (1869).

Characters : A very distinct genus if it may be judged by the type species which is the only species described for the genus and which is characterized by the three conspicuous spines, one on each shoulder and one in the middle of the dorsum. Head subquadrate, broader than high, with a horizontal ridge, deflexed below the ridge; base sinuate, lowest in the middle; eyes large and globular; ocelli very large, prominent, twice as far from each other as from the eyes and situated near the upper margin of the head, well above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for two-thirds its length below inferior margins of genæ. Pronotum convex and bearing three strong spines, two humeral and one dorsal; metopidium sloping, broader than high, central anterior margin extending slightly forward over the head; median carina percurrent; humeral angles weak and rounded; suprahumeral spines long, sharp, triquerate, extending upward and outward, as long as the distance between their bases; dorsal spine long, slender, erect, thornlike; posterior process long, slender, decurved, extending almost to the tips of the tegmina; scutellum hardly visible on each side. Tegmina long, narrow, semiopaque or translucent; base narrowly coriaceous and punctate; five apical and three or four discoidal cells; apex rounded; apical limbus well developed on dorsal margin. Legs simple; hind tarsi longest.

Type *tricorniger* Stål.

Geographical distribution : Known only from the type species from Cuba.

1. *tricorniger* Stål, Bid. Memb. Kan. 294. 1 (1869). — **Pl. 10, fig. 145.** Cuba.

168. GENUS BOÖCERUS STÅL

Boöcerus Stål, Bid. Memb. Kan. 290 (1869).

Characters : A monotypic genus, the type species of which bears a strong superficial resemblance to the forms of *Campylocentrus* in having the inferior lobe on the posterior process, but is entirely different in wing venation. Head subquadrate, broader than high; base weakly arcuate; eyes globular; ocelli conspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, bearing suprahumeral horns and a strong posterior process originating high above the scutellum; metopidium vertical, broader than high; median carina strongly percurrent; humeral angles strong, triangular, acute; suprahumeral horns long, strong, sharp, extending outward and upward, twice as long as the distance between their bases; posterior process strong, sinuate, arising high on the posterior dorsum, lobed on the inferior margin, apex sharp and extending beyond the internal angles of the tegmina; scutellum entirely exposed, triangular, tip deeply

notched. Tegmina pellucid; entirely exposed; base narrowly coriaceous and punctate; veins strong and colored; five apical and two discoidal cells, the outer discoidal cell stylate; tips rounded; apical limbus broad. Legs simple; hind tarsi longest.

Type *gilvipes* Stål.

Geographical distribution : The type species has been reported from Mexico and from Central America.

1. *gilvipes* Stål, Bid. Memb. Kan. 290. 1 (1869). — **Pl. 10, fig. 146.** Mexico, Honduras, Yucatan.

169. Genus SPATHOCENTRUS Fowler

Spathocentrus Fowler, B. C. A. II : 153 (1896).

Characters : The single species which represents this genus has, so far as we know, never been recognized since its original description. However, Fowler's description and his three excellent figures seem to leave no doubt but that the genus is valid and we are so recognizing it. From the original description and figures, the generic characters may be given as follows : Head subquadrate, broader than high; base arcuate and strongly sinuate; eyes globular; ocelli prominent, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus projecting for two thirds its length below inferior margins of genæ, tip rounded. Pronotum convex with strong suprahumerals; metopidium nearly vertical, about as broad as high; median carina percurrent; humeral angles strong, blunt; suprahumerals as long as the distance between their bases, projecting directly outward; posterior process elevated above scutellum, tip dilated and spatulate, not reaching beyond the internal angles of the tegmina. Tegmina hyaline; base broadly coriaceous and punctate; tip rounded; five apical and two discoidal cells; exterior discoidal cell truncate at base; apical limbus broad. Legs simple; all tarsi about equal in length.

Type *intermedius* Fowler.

Geographical distribution : The genus is known only from a single species from Mexico.

1. *intermedius* Fowler, B. C. A. II : 153. 1 (1869). Mexico.

170. Genus ISCHNOCENTRUS Stål

Ischnocentrus Stål, Bid. Memb. Kan. 292 (1869).

Characters : Small, inconspicuous insects without suprahumerals and with a slender posterior process high above the scutellum. Head subquadrate, broader than high; base arcuate; eyes large and globular; ocelli large, prominent, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus projecting for two-thirds its length below inferior margins of genæ. Pronotum convex, without suprahumeral horns; metopidium sloping, broader than high; median carina obsolete; humeral angles strong, triangular, blunt; posterior process slender, spine-like, short, arising from high on the dorsum, far above the scutellum and not reaching the internal angles of the tegmina; scutellum entirely exposed, triangular, longer than wide, base swollen and tomentose, tip deeply notched. Tegmina hyaline; base broadly coriaceous and punctate; five apical and two discoidal cells; exterior discoidal cell truncate at base; apical limbus narrow. Legs simple; all tarsi about equal in length.

Type *niger* Stål.

Geographical distribution : A Central and South American genus with three species distributed as follows :

1. *inconspicuous* Buckton, Mon. Memb. 255 (1903). — **Pl. 10, fig. 147.** British Guiana, Canal Zone.
2. *niger* Stål, Bid. Memb. Kan. 293. 1 (1869). Colombia, Panama, Costa Rica, British Guiana.
   ferruginosus Stål, Bid. Memb. Kan. 293. 2 (1869).
3. *rectospina* Lethierry, Ann. Soc. Ent. France 155 (1890). Venezuela.

171. GENUS CAMPYLOCENTRUS STÅL

Campylocentrus Stål, Bid. Memb. Kan. 289 (1869).
Gnamptocentrus Fowler, B. C. A. II : 151 (1896).
Sphærocentrus Fowler, B. C. A. II : 154 (1896).

Characters ; Robust heavy-bodied insects characterized particularly by the fact that the long posterior process has an inferior median lobe. Head subquadrate, wider than high; base slightly arcuate and weakly sinuate; eyes globular; ocelli large, prominent, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex with strong suprahumeral horns; metopidium vertical, about as broad as high; median carina percurrent; humeral angles strong, triangular, blunt; suprahumeral horns as long as the distance between their bases, extending outward and upward, triquerate, tips sharp; posterior process long, tectiform, with a strong inferior median lobe which touches the scutellum, tip sharp and extending well beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, base swollen and tomentose, tip notched. Tegmina translucent; base narrowly coriaceous and punctate; tip rounded; five apical and two discoidal cells; exterior discoidal cell sessile with base truncate; apical limbus broad. Legs simple, femora cylindrical, tarsi triquerate; hind tarsi much longer than the others.

Type *obscuripennis* Stål.

Geographical distribution : A genus which has its center of distribution in Central America with a few species extending into South America and into Mexico.

1. *aculeolus* Fairmaire, Rev. Memb. 512. 8 (1846). Surinam.
2. *brevicornis* Fowler, B. C. A. II : 151. 6 (1896). Guatemala, Panama.
3. *brunneus* Fowler, B. C. A. II : 151. 7 (1896). Mexico.
4. *cavipennis* Fowler, B. C. A. II : 153. 2 (1896). Guatemala, Panama.
5. *costalis* Walker, List Hom. B. M. 615. 44 (1851). Colombia.
6. *curvidens* Fairmaire, Rev. Memb. 515. 18 (1846). Mexico, Guatemala.
7. *gibbocornis* Walker, Ins. Saund. 76 (1858). Brazil, Mexico.
8. *hamifer* Fairmaire, Rev. Memb. 512. 10 (1856). Mexico, Guatemala, Panama, Yucatan.
   niveiplaga Walker, List Hom. B. M. Suppl. 160 (1858).
9. *nigris* Funkhouser, Journ. N.Y. Ent. Soc. XXXVIII : 4. 410 (1930). — **Pl. 10, fig. 148.** Costa Rica.
10. *obscuripennis* Stål, Bid. Memb. Kan. 289. 1 (1869). Mexico.
11. *pusillus* Fairmaire, Rev. Memb. 512. 11 (1896). Mexico.
12. *sinuatus* Fowler, B. C. A. II : 152. 1 (1896). Mexico, Guatemala, Panama, Yucatan.

13. *subspinosus* Fairmaire, Rev. Memb. 519. 31 (1846). Mexico, Honduras, Costa Rica, Panama.

14. *vitreipennis* Fowler, B. C. A. II : 150. 5 (1896). Guatemala.

172. Genus OPHICENTRUS Fowler

Ophicentrus Fowler, B. C. A. II : 156 (1896).

Characters : Small delicate insects with no suprahumeral horns and with a slender, extremely sinuate posterior process. Head subquadrate, broader than high; base weakly arcuate; eyes ovate; ocelli large, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus projecting for half its length below inferior margins of genæ, tip rounded. Pronotum convex, without suprahumerals, and smooth on each side of the median carina; pronotum sloping, about as broad as high; median carina percurrent; humeral angles large and rounded; posterior process long, slender, triquerate, extremely sinuate, elevated above scutellum, tip sharp and reaching well beyond the internal angles of the tegmina; scutellum entirely exposed. Tegmina subcoriaceous with very heavy veins; five apical and two discoidal cells, the exterior discoidal cell nearly circular and almost touching the costal margin of the corium; apical limbus broad. Legs simple; hind tarsi longest.

Type *notandus* Fowler.

Geographical distribution : This genus is known only from the type species from Panama.

1. *notandus* Fowler, B. C. A. II : 156. 1 (1896). — **Pl. 10, fig. 149.** Panama.

173. Genus PSILOCENTRUS Fowler

Psilocentrus Fowler, B. C. A. II : 156 (1896).

Characters : This is another of Fowler's monotypic genera, the representative species of which we have not seen. It must be close to *Ophicentrus* but differs in the wing venation, the less sinuate posterior process and in having the pronotum strongly tricarinate. From Fowler's description and figures, the generic characters may be indicated as follows : Head subquadrate, wider than high; base strongly arcuate; eyes globular; ocelli prominent, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus projecting for half its length below inferior margins of genæ. Pronotum convex with a strong, heavy ridge on each side of the median carina; metopidium sloping, about as broad as high; median carina strongly percurrent; humeral angles large and blunt; posterior process slender, lightly sinuate, arising from the upper part of the pronotum high above the scutellum and extending just about to the internal angles of the tegmina; scutellum entirely exposed. Tegmina hyaline; base narrowly coriaceous and punctate; five apical and two discoidal cells, the base of the exterior discoidal cell sessile and truncate; apical limbus broad. Hind wings with four apical cells. Legs simple; hind tarsi longest.

Type *xantipæ* Fowler.

Geographical distribution : The type species from Mexico is the only known representative of the genus.

1. *xantipæ* Fowler, B. C. A. II : 157. 1 (1896). Mexico.

174. GENUS CENTRONODUS FUNKHOUSER

Centronodus Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 405 (1930).

Characters : A very distinct and rather remarkable genus characterized particularly by the large, elevated, dorsal node at the base of the posterior process. The insects are large and robust with stout suprahumerals, posterior process close to scutellum and semiopaque tegmina. Head subquadrate, about as high and broad; base highly arcuate; eyes ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded and often notched; clypeus extending for one-third its length below the inferior margins of the genæ. Pronotum convex with stout suprahumeral horns; metopidium vertical, a little broader than high; median carina strongly percurrent; humeral angles large, triangular, blunt; suprahumeral horns heavy, robust, more or less conical, extending outward and upward, as long as the distance between their bases, tips triquerate and blunt; posterior process heavy, tectiform, very close to the scutellum and impinging on the tegmina, with a high, elevated dorsal crest at its base, tip suddenly acute and reaching beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina semiopaque; basal and costal areas broadly coriaceous and punctate; veins heavy and pilose; venation very irregular, particularly in the apical region which may show as many as twelve marginal apical cells and six or more discoidals; anal apical margin truncate; tip pointed; no apical limbus. Legs simple, femora cylindrical, tibiæ triquerate; hind tarsi very little longer than the others.

Type *denticulus* Funkhouser.

Geographical distribution : This genus has been reported from both Central and South America. Only two species have been described but undescribed material indicates that other species are not uncommon in South America.

1. *denticulus* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 405 (1930). — **Pl. 10, fig. 150.** Costa Rica.
2. *flavus* Funkhouser, Journ. N. Y. Ent. Soc. XXXVIII : 4. 406 (1930). Brazil.

175. GENUS PLATYCENTRUS STÅL

Platycentrus Stål, Hem. Fabr. II : 48 (1869).

Characters : Medium-sized to large insects with robust bodies, well developed suprahumeral horns and a short, heavy posterior process lying close to the scutellum. Head subquadrate, twice as broad as high; base arcuate and sinuate; eyes ovate; ocelli prominent, nearer to each other than to the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and incurved; clypeus extending for half its length below inferior margins of genæ. Pronotum convex with strong suprahumeral horns; metopidium nearly vertical, broader than high; median carina percurrent; humeral angles large and blunt; suprahumeral horns strong, heavy, varying in length but usually longer than the distance between their bases, extending outward and upward and sometimes slightly forward, tips usually sharp; posterior process short, heavy, tectiform, straight, tip sharp and not reaching beyond the internal angles of the tegmina and not nearly as far as the end of the abdomen,

closely impinging on scutellum and tegmina; scutellum narrowly exposed on each side. Tegmina translucent: base narrowly coriaceous and punctate; veins strong; five apical and three discoidal cells; tip rounded; apical limbus well developed. Legs simple; hind tarsi longest.

Type *acuticornis* Stål.

Geographical distribution : This genus seems to be limited to Mexico and southwestern United States.

1. *acuticornis* Stål, Bid. Memb. Kan. 291. 1 (1869). — **Pl. 10, fig. 151.** Mexico, Arizona, California.
   denticornis Buckton, Mon. Memb. 269 (1903).
2. *brevicornis* Van Duzee, Proc. Calif. Acad. Sci. XII : 11. 171 (1923). Lower California, San Marcos Island.
3. *obtusicornis* Stål, Bid. Memb. Kan. 291. 2 (1869). Mexico.
4. *ramosicornis* Plummer, Journ. N. Y. Ent. Soc. XLIII : 4. 373 (1935). Mexico.
5. *taurinus* Ball, Proc. Biol. Soc. Wash. XXXI : 29 (1918). California.

176. Genus ORTHOBELUS Stål

Orthobelus Stål, Hem. Fabr. II : 48 (1869).

Characters : Closely related to the preceding genus but differing particularly in having a long, straight posterior process which usually extends farther backward than the abdomen. Head subquadrate, wider than high; base weakly arcuate; eyes globular; ocelli very large, prominent, equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ sloping downward, sinuate; clypeus extending for half its length below the inferior margins of the genæ, tip gradually acute. Pronotum convex with strong suprahumeral horns; metopidium sloping, about as wide as high; median carina percurrent; humeral angles strong and triangular; suprahumeral horns strong, varying greatly in length, size and structure, often dilated at the tips, usually longer than the distance between their bases and extending outward and upward; posterior process long, usually straight, tectiform, impinging on scutellum and tegmina, tip sharp and reaching as far or farther than the end of the abdomen, always farther than the internal angles of the tegmina; scutellum plainly visible on each side. Tegmina hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two or three discoidal cells; tip pointed; apical limbus well developed. Legs simple; hind tarsi longest.

Type *urus* Fairmaire.

Geographical distribution : *Orthobelus* seems to be distinctly limited to the West Indies. The species are very abundant on these islands but have never been found in any other region.

1. *gomez-menori* Pelaez, Bol. Soc. Espan. XXXVI : 279 (1936). San Domingo.
2. *havanensis* Fairmaire, Rev. Memb. 516. 22 (1846). — **Pl. 10 fig. 152.** Cuba.
3. *poeyi* Fairmaire, Rev. Memb. 518. 29 (1846). Cuba, Haiti.
4. *urus* Fairmaire, Rev. Memb. 516. 23 (1846). San Domingo, Haiti, St Vincent's Island.
   megaceros Walker, List Hom. B. M. 615. 45 (1851).
   labatus Buckton, Mon. Memb. 239 (1903).
5. *wolcotti* Goding, Journ. N. Y. Ent. Soc. XXXVI : 37 (1928). Haiti.

177. Genus CALLICENTRUS Stål

Callicentrus Stål, Bid. Memb. Kan. 290 (1869).
Pyramba Buckton, Mon. Memb. 248 (1903).

Characters : Medium-sized to large insects with well-developed suprahumerals which vary greatly in size and structure and with a simple straight posterior process which entirely conceals the scutellum. Head subquadrate, twice as wide as high, transversely ridged across the middle and much deflexed below the ridge; base weakly arcuate; eyes very large and globular; ocelli large, prominent, protruding, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ strongly sinuate; clypeus extending for half its length below inferior margins of genæ, tip sharply pointed. Pronotum convex with strong suprahumeral horns; metopidium sloping, a little wider than high; median carina faintly percurrent; humeral angles large, triangular, blunt; suprahumeral horns long, strong and sharp but varying in size and structure, usually much longer than the distance between their bases and extending upward and outward; posterior process simple, straight, tectiform, impinging on tegmina, tip sharp and reaching beyond the internal angles of the tegmina, usually as far or farther than the end of the abdomen; scutellum entirely concealed. Tegmina long, narrow, hyaline; base narrowly coriaceous and punctate; tip pointed; five apical and two discoidal cells; apical limbus narrow. Legs simple; all tarsi about the same in length.

Type *ignipes* Walker.

Geographical distribution : A West Indian genus which, curiously enough, seems to be limited to Jamaica. The species are apparently quite abundant on that island but none have ever been reported from any other region.

1. *aurifascia* Walker, List Hom. B. M. 618. 49 (1851). — **Pl. 10, fig. 153.** Jamaica.
2. *bonasia* Fabricius, Syst. Ent. 677 (1775). Jamaica.
3. *cribratus* Walker, List Hom. B. M. 619. 51 (1851). Jamaica.
4. *flavivitta* Walker, List Hom. B. M. 617. 48 (1851). Jamaica.
5. *ignipes* Walker, List Hom. B. M. 616. 47 (1851). Jamaica.
6. *jucundus* Walker, List Hom. B. M. 620. 52 (1851). Jamaica.
7. *platycerus* Walker, List Hom. B. M. 618. 50 (1851). Jamaica.

178. Genus DAIMON Buckton

Daimon Buckton, Mon. Memb. 241 (1903).

Characters : The insects of this genus bear a strong superficial resemblance to those of the genus *Pterygia* of the subfamily Membracinæ but the legs are not at all foliaceous and the scutellum is well-developed and exposed. Head subquadrate, wider than high, somewhat deflexed; base nearly straight; eyes globular; ocelli large, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum convex with strong ampliate suprahumerals; metopidium nearly vertical, a little wider than high; median carina percurrent; humeral angles large and blunt; suprahumeral horns long, strong, with tips broadly flattened; posterior process long, heavy, with a dorsal

node or curve near the tip, tip suddenly acute and extending beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina semiopaque; base narrowly opaque and punctate; tip rounded; five apical and two discoidal cells; apical limbus very narrow. Legs slender and simple; hind tarsi longest.

Type *satyrus* Buckton.

Geographical distribution : This is another West Indian genus with a very limited distribution, being found only on the island of Haiti.

1. *satyrus* Buckton, Mon. Memb. 241 (1903). — **Pl. 10, fig. 154.** Haiti.
2. *serricorne* Walker, Ins. Saund. 77 (1858). Haiti.

179. Genus AMBLYCENTRUS Fowler

Amblycentrus Fowler, B. C. A. II : 158 (1896).

Characters : Small elongate densely pubescent insects without suprahumerals and with a short thick posterior process lying close to the scutellum. Head subquadrangular, about as long as broad; base arcuate and sinuate; eyes large and globular; ocelli prominent, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, strongly pubescent; no suprahumeral horns; metopidium sloping, as high as broad, somewhat plicate at base; median carina percurrent; humeral angles strong and subauriculate; posterior process short, tectiform, impinging on scutellum, tip blunt and reaching only a little beyond the apex of the scutellum, scutellum well exposed on each side. Tegmina long, pubescent; veins strong; five apical and two discoidal cells; veins of clavus elevated; apical limbus well developed. Hind wings with four apical cells. Legs simple; hind tarsi longest.

Type *pubescens* Fowler.

Geographical distribution : The type species from Mexico is the only known representative of the genus.

1. *pubescens* Fowler, B. C. A. II : 158. 1 (1896). — **Pl. 10, fig. 155.** Mexico.

180. Genus CENTRICULUS Fowler

Centriculus Fowler, B. C. A. II : 157 (1896).

Characters : Medium-sized, slender bodied insects, without suprahumerals and with a short, straight posterior process lying close to the scutellum. Head subquadrate, broader than long; base strongly sinuate; eyes globular; ocelli prominent, farther from each other than from the eyes and situated near the base of the head, far above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus projecting for half its length below inferior margins of genæ. Pronotum convex, without suprahumerals; metopidium sloping, broader than high; median carina percurrent; humeral angles very large, blunt; posterior process very short, not reaching beyond the apex of the scutellum; scutellum broadly exposed on each side. Tegmina hyaline; basal half broadly coriaceous and punctate; apex rounded; five apical and two oblong, almost equal discoidal cells; apical limbus well developed. Hind wings with four or five apical cells. Legs simple; tibiæ inclined to be serrate; hind tarsi longest.

Type *rufotestaceus* Fowler.

Geographical distribution : A Middle American genus with the two following species :

1. *flavus* Goding, Journ. N. Y. Ent. Soc. XXXVII : 2. 171 (1929). Costa Rica, Yucatan.
2. *rufotestaceus* Fowler, B. C. A. II : 157. 1 (1896). — **Pl. 10, fig. 156.** Mexico, Panama, Guatemala.

181. Genus BRACHYBELUS Stål

Brachybelus Stål, Bid. Memb. Kan. 292 (1869).

Characters : Small, inconspicuous insects with broad pronotum, no suprahumerals, short, slender posterior process and three apical cells in the hind wings. Head subquadrate, broader than high, deflexed; base weakly sinuate; eyes ovate; ocelli small, twice as far from each other as from the eyes and located near the base of the head, far above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for two-thirds its length below inferior margins of genæ. Pronotum broad, convex, without suprahumerals; metopidium sloping, twice as broad as high; median carina obsolete; humeral angles large and triangular; posterior process short, slender, straight, impinging on scutellum and not reaching the internal angles of the tegmina; scutellum broadly exposed on each side. Tegmina subhyaline; base broadly coriaceous and punctate; veins strong and pilose; five apical and two discoidal cells; apical limbus narrow. Legs simple; hind tarsi longest.

Type *cruralis* Stål.

Geographical distribution : The type species, which is very abundant throughout Mexico and Central America, is the only described representative of the genus.

1. *cruralis* Stål, Bid. Memb. Kan. 292. 1 (1869). — **Pl. 10, fig. 157.** Mexico, Guatemala, Panama, Honduras.

182. Genus BRACHYCENTRUTUS Metcalf and Bruner

Brachycentrutus Metcalf and Bruner, Bull. Brook. Ent. Soc. XXI : 28 (1926).

Characters : Near the preceding genus in general facies but differing in having three discoidal cells in the tegmina and in having a broad, triangular posterior process which reaches the apex of the clavus. Head subquadrate, broader than high; base nearly straight; eyes globular; ocelli small, twice as far from each other as from the eyes and situated near the base of the head, far above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus projecting for half its length below inferior margins of genæ. Pronotum convex, without suprahumerals; metopidium nearly vertical, broader than high; median carina percurrent; humeral angles large and blunt; posterior process short, heavy, triangular, reaching just about to the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina semiopaque, coriaceous and punctate, with indistinct veins in the basal three-fourths; hyaline in the apical fourth; five apical and three discoidal cells, the two outer discoidal cells

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Note : Walker's species *patulus* has usually been considered as belonging to the genus Brachybelus, but this species probably belongs to the Bythoscopidæ.

nearly equal in size, the inner more elongate; apical limbus broad. Legs simple, slender, pilose; posterior tibiæ roughly serrate; hind tarsi longest.

Type *punctatus* Metcalf and Bruner.

Geographical distribution : Another West Indian genus with species known only from Cuba.

1. *hirsutus* Metcalf and Bruner, Memb. Cuba 213 (1925). — Cuba.
2. *punctatus* Metcalf and Bruner, Memb. Cuba 212 (1925). — **Pl. 10, fig. 158.** — Cuba.

183. Genus MONOBELUS Stål

Monobelus Stål, Analect. Hem. 368 (1866).
Delauneya Lethierry, Ann. Ent. Soc. Belg. XXV : 17 (1881).
Gibbomorpha Buckton, Mon. Memb. 192 (1903).

Characters : Small to medium-sized insects with robust, compact bodies, no suprahumerals, long, heavy posterior process reaching as far as the end of the abdomen, and entirely free tegmina with three discoidal cells. Head subquadrate, twice as broad as high; base feebly arcuate; eyes globular; ocelli large, conspicuous, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping downward, nearly straight; clypeus extending for one-third its length below inferior margins of genæ, tip narrowly rounded. Pronotum broad, convex, smooth, without suprahumerals; metopidium sloping, much broader than high; median carina obsolete; humeral angles broad and blunt; posterior process long, heavy, sharp, nearly straight, extending beyond the internal angles of the tegmina and reaching as far or farther than the end of the abdomen; scutellum broadly exposed on each side, base usually tomentose. Tegmina extirely exposed; hyaline; base narrowly coriaceous and punctate; five apical and three discoidal cells; apical limbus broad. Legs simple, slender; hind tarsi longest.

Type *fasciatus* Fabricius.

Geographical distribution : This West Indian genus has the widest distribution of any membracid genus in the Islands. It has never been reported from any other region.

1. *fasciatus* Fabricius, Ent. Syst. Suppl. 515. 33 (1798). — **Pl. 10, fig. 159.** — Porto Rico, Cuba, Haiti.
   degeeri Coquebert, Ill. Icon Ins. I : 35 (1799).
   2-guttatus Fabricius, Syst Rhyng. 21. 27 (1803).
   parvula Buckton, Mon. Memb. 192 (1903).
2. *flavidus* Fairmaire, Rev. Memb. 519. 34 (1846). — Cuba, Haiti.
   semicrema Baker, Can. Ent. XXXIX : 16 (1907).
3. *irroratus* Metcalf and Bruner, Memb. Cuba 211 (1925). — Cuba.
4. *lateralis* Stål, Hem. Fabr. II : 50. 5 (1869). — Cuba.
5. *nasutus* Stål, Hem. Fabr. II : 50. 2 (1869). — Guadeloupe, Cuba, Porto Rico.
   fasciata Lethierry, Ann. Ent. Soc. Belg. XXV : 17 (1881).
   aurea Buckton, Mon. Memb. 193 (1903).
6. *niger* Metcalf and Bruner, Memb. Cuba 210 (1925). — Cuba.
7. *obtusiceps* Stål, Hem. Fabr. II : 50. 3 (1869). — Porto Rico, Haiti, Guadeloupe.
8. *turquinensis* Metcalf and Bruner, Memb. Cuba 210 (1925). — Cuba.

184. Genus QUADRINARIA Goding

Quadrinaria Goding, Journ. N. Y. Ent. Soc. XXXV : 2. 167 (1927).

Characters : This genus is unknown to us and we are including it entirely on the authority of its author. Goding, however, does not figure the type species and consequently we are unable to present a Plate Figure. Goding states that the genus is near *Brachycentrutus* and *Gargara*, differing from the former in the shape of the head, the position of the ocelli, dorsum not depressed, acute apex passing beyond apex of clavus, forked radial and simple ulnar veins, sessile exterior and interior discoidal cells and but four apical cells; and differing from the latter in the subopaque tegmina, three discoidal and four apical cells. The original description is as follows :

> « Head with eyes broad as width between humerals, triangular, base straight not sinuate; eyes small; clypeus not extended below loræ; ocelli even with center of eyes, same distance from each other and base of the head. Pronotum convex, unarmed, with a median carina lightly sinuate at middle of dorsum, densely punctured anteriorly more sparingly behind middle. distinctly notched behind humerals exposing a little of sides of scutellum, and covered with fine pale hairs; posterior process robust, not tectiform, apical fourth acuminate from above and laterally to acute apex which reaches tips of tegmina. Tegmina nearly free; clavus partly covered by sides of pronotum, clear hyaline excepting coriaceous base, sides nearly parallel, apex obtusely rounded, destitute of a longitudinal vein; corium emitting two longitudinal veins from base, radial vein forked at middle enclosing first exterior discoidal cell, ulnar vein simple; three discoidal cells the first exterior cell stylate, second cell behind it sessile base truncate, the third or interior cell equal and contiguous to the others in length, situate between radial and ulnar veins, sessile, its base truncate at a transverse venule; four sessile apical cells bases truncate. Wings with three apical cells, first and second sessile bases truncate, third stylate, second cell large and nearly semicircular, the others small. Legs strong, tibiae slender not dilated, tarsi equal. »

Type *u-flava* Goding.

Geographical distribution : The type species from Jamaica is the only known representative of the genus.

1. *u-flava* Goding, Journ. N. Y. Ent. Soc. XXXV : 2. 168 (1927). Jamaica.

185. Genus MARSHALLELLA Goding

Marshallella Goding, Journ. N. Y. Ent. Soc. XXXV : 2. 168 (1927).

Characters : This genus, as judged by the type species, is very distinct and differs from its nearest relatives in having the scutellum entirely concealed and in having the exterior discoidal cell of the corium sessile and truncate at the base. The type species is a large brightly colored insect without suprahumerals, with a long straight posterior process and with the legs and a spot at the base of the tegmina brilliant red. Head subquadrate, roughly sculptured, twice as broad as high; base weakly arcuate and sinuate with a small tuberosity above each ocellus; eyes very large, globular and protruding; ocelli very large, prominent, a little farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genae sinuate; clypeus extending for two-thirds its length below inferior margins of genae, tip pointed and pilose. Pronotum low, convex, broad, without suprahumerals; metopidium sloping, twice as broad as high; median carina faintly and irregularly percurrent; humeral angles large, broad and rounded; posterior process long, straight,

tectiform, gradually acuminate, tip reaching beyond the internal angles of the tegmina; scutellum entirely concealed. Tegmina hyaline; base narrowly coriaceous and punctate; veins very strong; five or six apical and two discoidal cells; exterior discoidal cell sessile and truncate at base; apical limbus narrow. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *rubripes* Goding.

Geographical distribution : This genus is known only from the type species from Jamaica.

1. *rubripes* Goding, Journ. N. Y. Ent. Soc. XXXV : 2. 169 (1927). Jamaica.
— **Pl. 10, fig. 160.**

TRIBES OF THE OLD WORLD CENTROTINÆ

I. *Pronotum with a posterior process*

A. *Tibiæ and head not dilated; scutellum usually visible*

1. *Pronotum with suprahumeral horns*

a. *Hind wings with three apical cells* . . . . CENTROTINI Distant.

aa. *Hind wings with four apical cells*

b. *Sides of mesonotum bearing teeth*

c. *Pronotum bearing a single high process* . . . . HYPSAUCHENINI Distant.

cc. *Pronotum with two horns* . . . . CENTROCHARESINI Goding.

bb. *Sides of mesonotum unarmed*

c. *Pronotum elevated in a high erect process* . . . . . . MICREUNINI Distant.

cc *Pronotum without a high median process* . . . . . . LEPTOCENTRINI Distant.

2. *Pronotum without suprahumeral horns*

a. *Hind wings with three apical cells*

b. *Sides of mesonotum bearing teeth* . . . . COCCOSTERPHINI Goding.

bb. *Sides of mesonotum unarmed* . . . . GARGARINI Distant.

aa. *Hind wings with four apical cells* . . . . UROXIPHINI Goding.

B. *Front tibiæ and head more or less foliaceous; scutellum present but often concealed* . . . . OXYRHACHISINI Distant.

II. *Pronotum without a posterior process* . . . . DARTHULINI Tribus nov.

GENERA OF THE TRIBE CENTROTINI DISTANT

I. *Base of posterior process not touching scutellum*

A. *Posterior process not angulate at base*

1. *Posterior process with inferior lobe* . . . . CENTROTUS Fabricius.

2. *Posterior process without a lobe beneath*

a. *Posterior process curved at base, then straight to apex*

b. *Tegmina with two discoidal cells* . . . . TRICOCEPS Buckton.

bb. *Tegmina with four discoidal cells* . . . . CENTROTUSOIDES Distant.

aa. *Posterior process sinuate*

b. *Posterior process slender, simple*

c. *Suprahumerals robust, strongly oblique* . . . . PLATYBELUS Stål.

cc. *Suprahumerals slender, horizontal* . . . . EVANCHON Goding.

bb. *Posterior process heavy, swollen or laminate*

c. *Posterior process nodose* . . . . AMITROCHATES Distant.

cc. *Posterior process not nodose* . . . , ... BARSUMAS Distant.

B. *Posterior process angulate at base*

1. *Suprahumerals contiguous or united at base* . . . . MONOCENTRUS Melichar.

2. *Suprahumerals distant between bases*

a. *Posterior process ampliate beneath* . . . . MAGUVA Melichar.

aa. *Posterior process not ampliate beneath*

b. *Suprahumerals truncate at tips* . . . . ANCHON Buckton.

bb. *Suprahumerals acute* . . . . SPALIRISES Distant.

II. *Base of posterior process impinging on scutellum*

A. *Posterior process laminate*

1. *Posterior process with high dorsal node*

a. *Suprahumerals toothed* . . . . PANTALEON Distant.

aa. *Suprahumerals simple* . . . . ANTIALCIDAS Distant.

2. *Posterior process without high dorsal node*

a. *Suprahumerals cornute*. . . . . MAURYA Distant.

aa. *Suprahumerals auriculate* . . . . MACHÆROTYPUS Uhler.

B. *Posterior process not laminate*

1. *Hind trochanters armed internally with teeth*

a. *Apical veins of tegmina straight* . . . . TRICENTRUS Stål.

aa. *Apical veins of tegmina curved* . . . . TRICENTROIDES Distant.

2. *Hind trochanters unarmed*

a. *Suprahumerals contiguous or united at their bases* . . . . EUMONOCENTRUS Schmidt.

aa. *Suprahumerals not contiguous or united* . . . . CRITO Distant.

186. GENUS CENTROTUS FABRICIUS

Centrotus Fabricius, Syst. Rhyng. 18 (1803).

Beaufortiana Distant, Rhynch. Notes 30 (1916).

Paratricentrus Kato, Trans. Nat. Hist. Soc. Formosa XVIII : 95. 115 (1928).

Characters : The type species of this genus was one of the first membracids ever to be described and since it was one of the commonest, and one of the few members of the family found in Europe, it consequently must have been very familiar to the early entomologists. As a result, it would seem that any new species which bore even a superficial resemblance to *C. cornutus* was placed in this genus, only to be removed later to some other genus when the family became more and more subdivided. Nevertheless, it is rather surprising to note that the bibliography of the genus shows a total of

279 different species which at one time or another have been assigned to it of which only 40 now remain and some of these are very doubtful as to their correct generic classification.

The representatives of this genus are large, robust insects with strong suprahumerals and a more or less straight, heavy posterior process which has a well developed inferior node. Other important generic characters may be listed as follows : Head subquadrate, a little wider than high, usually pubescent; base arcuate; eyes comparatively small and ovate; ocelli large, prominent, somewhat farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genae sloping downward, weakly sinuate; clypeus extending for more than half its length below the inferior margins of the genæ, tip truncate. Pronotum convex with strong suprahumerals; metopidium nearly vertical, about as broad as high; median carina percurrent; humeral angles large and blunt; suprahumeral horns heavy, as long as the distance between their bases, extending outward and upward, triquerate, tips pointed; posterior process heavy, tectiform, arising from well above the scutellum, with a large inferior node which impinges on the tegmina, tip sharp and reaching just about to the internal angles of the tegmina; scutellum entirely exposed, heavy, triangular, tectiform. Tegmina entirely free, broad, subhyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad. Hind wings with three apical cells. Legs simple; femora cylindrical; tibiæ triquerate and minutely spined; hind tarsi longest.

Type *cornutus* Linnæus.

Geographical distribution : The wide distribution recorded for this genus makes one suspicious that some of the species may not be correctly assigned, since widely separated regions of Europe, Asia, Africa and the East Indies are included in the list of localities. If all of the following species really belong to *Centrotus* (which we very much doubt), this genus is the most cosmopolitan of all of the membracid genera. Unfortunately many of these species have never been recognized since their original descriptions and we can therefore only record them as they have been described until further information is available.

1. *albigutta* Walker, Journ. Linn. Soc. Zool. X : 184 (1868). — Indian Archipelago.
2. *albilatus* Walker, Journ. Linn. Soc. Zool. X : 184 (1868). — New Guinea.
3. *angustulus* Melichar, Hom. Ceylon 112. 8 (1903). — Ceylon.
4. *bantuantus* Distant, Ins. Trans. 1. 215 (1908). — Transvaal.
5. *bicolor* Walker, List Hom. B. M. 625. 63 (1851). — Unknown.
6. *bioculatus* Kirby, Journ. Linn. Soc. Zool. XXIV : 166 (1891). — Ceylon.
7. *biturris* Walker, List Hom. B. M. Suppl. 164 (1858). — New Hebrides.
8. *bovinus* Distant, Rhynch. Notes 323 (1916). — British East Africa.
9. *colladoi* Pelaez, Memb. Fernando Po 49 (1935). — Fernando Po.
10. *constipatus* Walker, Journ. Linn. Soc. Zool. X : 192 (1868). — Indian Archipelago.
11. *cornutus* Linnæus, Fauna Suecica 879 (1746). — **Pl. 10, fig. 161.** — Germany, Austria, Poland, France, Italy, Spain, Portugal, England, Finland, Russia, Siberia.
    italicus Kirschbaum, Cicad. 67 (1855).
    turcicus Kirschbaum, Cicad. 67 (1855).
    abbreviatus Kirschbaum, Cicad. 67 (1855).
    siculus Kirschbaum, Cicad. 66 (1855).
    gallicus Kirschbaum, Cicad. 67 (1855).
    « *horncicade* » Taschenberg, Beld. Ins. Libr. 541 (1861).
    depressus Fieber, Rev. Mag. Zool. III : 15 (1876).
    obtusus Fieber, Rev. Mag. Zool. III : 19 (1876).
    rugosus Buckton, Mon. Memb. 243 (1903).
12. *difficilis* Distant, Rhynch. Notes 31 (1916). — Cape Colony.

13. *distanti* nom. nov. *cornuta* (preoccupied) Distant, Rhynch. Notes 31 (1916).	Cape Colony.
14. *flagellifer* Signoret, Thoms. Arch. II : 336. 641 (1858).	Calabar.
15. *globifer* Pelaez, Memb. Fernando Po 44 (1935).	Biafra.
16. *granulatus* Kirby, Journ. Linn. Soc. Zool. XXIV : 166 (1891).	Ceylon.
17. *impressus* Walker, Journ. Linn. Soc. Zool. X : 192 (1868).	East Indies
18. *indicatus* Melichar, Hom. Ceylon III : 6 (1903).	Ceylon, British India.
19. *laxatus* Distant, Rhynch. Notes 155 (1916).	Natal.
20. *magellani* Fairmaire, Rev. Memb. 513. 12 (1846).	Philippines.
21. *marshalli* Distant, Rhynch. Notes 154 (1916).	Mashonaland.
22. *metangensis* Distant, Rhynch. Notes 323 (1916).	Borneo.
23. *nervosus* Motschulsky, Put. Cat. 98 (1859).	Europe:
24. *nitobei* Matsumura, Cic. Jap. II : 17. 3 (1912).	Japan.
25. *nodulatus* Pelaez, Memb. Fernando Po 46 (1935).	Fernando Po.
26. *pacificus* Gerstaecker, Reis. Ost. Afr. 430 (1873).	East Africa.
27. *pallidus* Walker, List Hom. B. M. 625. 62 (1851).	Unknown.
28. *quadripunctatus* Stål, Ofv. Vet. Akad. Forh. 95. 4 (1855).	Natal.
29. *ramosus* Distant, Faun. Brit. Ind. 47. 2169 (1907).	Ceylon.
30. *rugosus* Montrozier, Ann. Soc. Lyon II : 1 (1855).	Woodlark Islands.
31. *scutellaris* Olivier, Enc. Meth. 665. 23 (1792).	East Indies.
32. *shoanus* Distant, Rhynch. Notes 323 (1916).	Abyssinia
33. *spinicornis* Stål, Ofv. Vet. Akad. Forh. 95. 3 (1855).	Caffraria.
34. *subnodosus* Jacobi, Erg. Zent. Afr. Exp. IV : 35 (1912).	Central Africa.
35. *subsimilis* Walker, Journ. Linn. Soc. Lond. I : 163. 113 (1857).	Borneo.
36. *talumensis* Distant, Rhynch. Notes 292 (1916).	Malaya.
37. *taurifrons* Walker, List Hom. B. M. 608. 22 (1851).	Java.
38. *tenuispina* Pelaez, Memb. Fernando Po 51 (1935).	Fernando Po.
39. *varipennis* Signoret, Thoms. Arch. II : 337. 643 (1858).	Calabar.
40. *walkeri* (nom. nov.) Funkhouser, Cat. Memb. 372 (1927). *costalis* (preoccupied) Walker, Ins. Saund. 82 (1858).	Unknown.

187. Genus TRICOCEPS Buckton

Tricoceps Buckton, Mon. Memb. 249 (1903).

Tambusa Distant, Ins. Trans. 216 (1908).

Tambusana Distant, Ann. Mag. Nat. Hist. IX : 652 (1912).

Characters : A genus of robust insects with strong suprahumerals, the posterior process curved but not angulate at the base, three apical cells in the hind wings and two discoidal cells in the tegmina. Head irregularly subquadrate, about as broad as high; base highly arcuate; eyes ovate; ocelli prominent, twice as far from each other as from the eyes and situated far above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for two-thirds its length below inferior margins of

genæ. Pronotum convex with strong suprahumerals; metopidium nearly vertical, about as broad as high; median carina percurrent; humeral angles heavy, triangular, blunt; suprahumeral horns strong, triquerate, as long or longer than the distance between their bases, extending outward and upward, tips sharp; posterior process high above the scutellum, curved at base and then nearly straight to apex which reaches beyond the internal angles of the tegmina; scutellum entirely exposed, subhyaline; base narrowly coriaceous and punctate; veins somewhat indistinct; five apical and two discoidal cells; apical limbus well developed. Legs simple; hind tarsi longest.

Type *brunnipennis* Germar.

Geographical distribution : This is distinctly an African genus with species widely distributed on that continent.

1. *angulatus* Pelaez, Memb. Fernando Po 55 (1935).	Cameroons.
2. *brunnipennis* Germar, Rev. Silb. III : 257. 4 (1835).	Natal, Cape of Good Hope, Transvaal.
3. *curvispina* Distant, Rhynch. Notes 322 (1916).	Congo Free State, Nyanza.
4. *guineensis* Pelaez, Memb. Fernando Po 56 (1935).	Biafra.
5. *pubipennis* Fairmaire, Rev. Memb. 511. 7 (1846). — **Pl. 10, fig. 162.**	Cape of Good Hope, Transvaal.
6. *rugosa* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 149 (1927).	Bugombe.

188. Genus CENTROTUSOIDES Distant

Centrotusoides Distant, Rhynch. Notes 30 (1916).

Characters : Heavy-bodied insects, closely related to those of the preceding genus but differing in having the basal curve of the posterior process farther caudad and in having at least four discoidal cells in the tegmina. Head subquadrate, wider than high; base highly arcuate; eyes ovate; ocelli prominent, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus trilobed, extending for two-thirds its length below inferior margins of genæ. Pronotum convex with short, stout suprahumerals; metopidium nearly vertical, broader than high; median carina strongly percurrent; humeral angles very large and blunt; suprahumeral horns short, swollen, triquerate, not as long as the distance between their bases, extending outward and slightly upward, tips blunt; posterior process heavy, tectiform, tricarinate, curved above the scutellum, tips sharp and reaching beyond the internal angles of the tegmina; scutellum well exposed on each side. Tegmina subhyaline; base narrowly coriaceous and punctate; five apical cells and four or more (usually five and sometimes six) discoidal cells arranged in two transverse rows with three in the distal row and one, two or three in the proximal row; apical limbus broad. Legs very strong; tibiæ inclined to be flattened; hind tarsi longest.

Type *muiri* Distant.

Geographical distribution : An African genus with two species both from South Africa.

1. *muiri* Distant, Rhynch. Notes 30 (1916). — **Pl. 10, fig. 163.**	Natal.
2. *wealei* Distant, Rhynch. Notes 30 (1916).	Durban.

189. GENUS PLATYBELUS STÅL

Platybelus Stål, Hem. Afr. IV : 96 (1866).

Characters : The insects of this genus are distinguished by their strongly oblique robust suprahumeral horns and slender, sinuate, acuminate posterior process which does not touch the scutellum. Head subquadrate, wider than high, usually pubescent; base strongly arcuate and sinuate; eyes ovate; ocelli not conspicuous, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping downward and feebly sinuate; clypeus extending for half its length below inferior margins of genæ, tip pointed. Pronotum convex with long suprahumerals; metopidium vertical, wider than high; median carina strongly percurrent; humeral angles large, triangular and blunt; suprahumeral horns long, triquerate, sharp, extending outward and upward, much longer than the distance between their bases; posterior process long, sinuate, tectiform, acuminate, tip reaching a point well beyond the internal angles of the tegmina and usually beyond the end of the abdomen; scutellum well exposed on each side. Tegmina hyaline; base narrowly coriaceous and punctate; veins strong; five apical and three discoidal cells; tip pointed; apical limbus broad. Hind wings with three apical cells. Legs simple; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *flavus* Signoret.

Geographical distribution : This is an African genus with one (doubtful) species from southern Asia.

1. *africanus* Distant, Rhynch. Notes 325 (1916).	Cameroons, Uganda, Buamba, Semlili, Budongo, Unyoro.
2. *albescens* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 146 (1927).	Zanzibar.
3. *aries* Jacobi, Kil. Exp. XII : 7. 123 (1910).	Kilimandjaro.
4. *brunneus* Funkhouser, Journ. N. Y. Ent. Soc. XLII : 3. 339 (1934).	Transvaal, Natal.
5. *dschagga* Jacobi, Kil. Exp. XII : 7. 122 (1910).	Kilimandjaro.
6. *escaleranus* Distant, Rhynch. Notes 324 (1916).	Cameroons.
7. *flavus* Signoret, Thoms. Arch. Ent. II : 339. 646 (1858). *varipennis* Distant, Rhynch. Notes 326 (1916).	Calabar.
8. *gowdeyi* Distant, Rhynch. Notes 325 (1916).	Uganda, Mabira.
9. *insignis* Distant, Rhynch. Notes 326 (1916).	Nyassaland.
10. *luteus* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 239 (1914).	Banguay.
11. *macrocerus* Pelaez, Bol. Soc. Espanola XXXVI : 194 (1936).	Abyssinia.
12. *projectus* Funkhouser, Rev. Suisse de Zool. 43 : 2. 193 (1936).	South Africa.
13. *sinuosus* Distant, Rhynch. Notes 155 (1916). — **Pl. 10, fig. 164.**	Nyassaland.

190. GENUS EVANCHON GODING

Evanchon Goding, Journ. N. Y. Ent. Soc. XXXVIII : 40 (1930).

Characters : This is a genus characterized by the horizontal suprahumerals and the very strongly sinuate posterior process which is elevated above the scutellum. Head subquadrate, a little

wider than high; base arcuate and weakly sinuate; eyes globular; ocelli small, inconspicuous, twice as far from each other as from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for two-thirds its length below inferior margins of genæ. Pronotum convex with horizontal suprahumerals; metopidium sloping, broader than high; median carina faintly percurrent; humeral angles triangular and blunt; suprahumeral horns projecting almost directly outward, variable in size and structure, the tips being sharp, truncate or dentate; posterior process long, strong, nearly cylindrical, tricarinate, very strongly sinuate, arising from above the scutellum, tip sharp and extending beyond the end of the abdomen, almost to the tips of the tegmina; scutellum entirely exposed, subtriangular, tip broadly notched. Tegmina hyaline; base broadly coriaceous and punctate; venation irregular; five apical cells with curved veins; one or two discoidal cells; apical limbus narrow. Legs simple; hind tarsi longest.

The variation in the structure of the suprahumerals and in the wing venation of this genus as well as the erratic geographical distribution of the forms may warrant a further subdivision of the genus if and when more species are described which will indicate definite distinctions between these variations.

Type *serpentinus* Funkhouser.

Geographical distribution : This genus, as at present constituted, shows species both in Africa and in the East Indies. We are inclined to believe that the two groups may eventually prove to represent different genera.

1. *javanensis* nom. nov. *sinuata* (preoccupied) Funkhouser, Treubia 15. 1 (1935).	Java.
2. *maculatus* Funkhouser, Tijd. Ent. 80. 123 (1937).	Java.
3. *minutus* Funkhouser, Can. Ent. LI : 10 (1919).	Pretoria, Africa.
4. *serpentinus* Funkhouser, J. R. A. S. 82 : 209. 13 (1920). — **Pl. 10, fig. 165.**	Borneo.
5. *sinuatus* Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 428 (1935).	Uganda, Africa.

191. Genus AMITROCHATES Distant

Amitrochates Distant, Rhynch. Notes 327 (1916).

Characters : Small, rough insects characterized by the very nodose and sinuate posterior process and the short, bulbous, spined suprahumerals. Head subquadrate, declivous, longitudinally ridged, twice as broad as high; base arcuate and sinuate; eyes large and globular; ocelli inconspicuous, about equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for more than half its length below the inferior margins of the genæ, tip truncate. Pronotum convex with bulbous suprahumerals which terminate in a spine; median carina percurrent; humeral angles heavy and blunt; suprahumeral horns thick and subconical, projecting directly outward and ending in a sharp spine; posterior process heavy, very sinuate, nodose, rough, elevated above the scutellum and ending in a spine which reaches beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, longer than broad, tip upcurved. Tegmina hyaline; base broadly coriaceous and punctate; five apical and two discoidal cells; apical limbus broad. Legs simple; hind tarsi longest.

Type *grahami* Distant.

Geographical distribution : The genus is represented by two African species.

1. *grahami* Distant, Rhynch. Notes 328 (1916). — **Pl. 10, fig. 166.** Ashanti, Obuasi, Gold Coast.
2. *mabirensis* China, Ann. Mag. Nat. Hist. XI : 463 (1923). Aburi, Uganda, Mabira.

192. Genus BARSUMAS Distant

Barsumas Distant, Rhynch. Notes 156 (1916).

Characters : Small, inconspicuous insects closely related to those of the genus *Platybelus* Stål, but differing particularly in the structure of the posterior process which is broadly, laterally flattened and impinges on the tegmina for its distal two-thirds. Head subquadrate, broader than high, apical half deflexed; base arcuate and sinuate; eyes globular; ocelli small, inconspicuous, elevated, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for more than half its length below inferior margins of genæ. Pronotum convex, with short, broad, flattened suprahumerals; metopidium sloping, broader than high, extended forward in a ridge over the head; median carina percurrent; humeral angles large, triangular and sharp; suprahumeral horns short, flattened, blunt, extending outward and slightly upward, not as long as the distance between their bases; posterior process heavy, laminate, arising from well above the scutellum, arching above the scutellum, then curved downard and impinging on the tegmina for its sinuate two-thirds, inclined to be serrate above, tip sharp and extending beyond the lateral angles of the tegmina; scutellum entirely exposed, subtriangular, longer than broad, tip notched and upcurved. Tegmina broad, hyaline, wrinkled; base coriaceous and punctate; veins prominent; tip pointed; five apical and three discoidal cells; apical limbus broad, particularly on the anal margin. Hind wings with three apical cells. Legs simple; hind tarsi longest.

Type *primus* Distant.

Geographical distribution : This is an African genus known only from the type species.

1. *primus* Distant, Rhynch. Notes 156 (1916). — **Pl. 11, fig. 167.** Mashonaland, Salisbury, Belgian Congo.

193. Genus MONOCENTRUS Melichar

Monocentrus Melichar, Wien. Ent. Zeit. XXIV : 297 (1905).
Congellana Distant, Ins. Trans. I : 213 (1908).
Basilides Distant, Rynch. Notes 149 (1916).

Characters : A very distinct genus characterized particularly by the long suprahumerals which are closely contiguous or actually joined at their bases. Head subquadrate, broader than high; base highly arcuate and strongly sinuate; eyes globular; ocelli large, prominent, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ, tip pointed. Pronotum elevated, conical, bearing suprahumeral horns which either touch each other or are grown together at their bases; metopidium conical, higher than wide; median carina percurrent; humeral angles strong, triangular and blunt; suprahumeral horns varying in size and structure but always close together or united at their bases and usually laminate and extending outward at the tips; posterior process heavy, sinuate, arising from high above the scutellum, sharply angulate near the base, sometimes with a tooth

on the angle, extending backward beyond the internal angles of the tegmina and generally as far as the end of the abdomen; scutellum entirely exposed, subtriangular, tip notched. Tegmina narrow, basal area usually coriaceous, apical area hyaline; five apical and three discoidal cells; tips sharply pointed; apical limbus narrow. Legs simple; hind tarsi longest.

Type *deletus* Melichar.

Geographical distribution : An African genus with a rather wide distribution as is indicated by the following species :

1. *albomaculatus* Schmidt, Zool. Anz. XXXVIII : 239 (1911).	East Africa.
2. *bipennis* Walker, List Hom. B. M. 606. 19 (1851). *albolineatum* Buckton, Mon. Memb. 216 (1903).	West Africa, Ogragra, Cameroons, Calabar, Mt. Coffee.
3. *deletus* Melichar, Wien. Ent. Zeit. XXIV : 297 (1905).	East Africa.
4. *flavigaster* Pelaez, Memb. Fernando Po 26 (1935).	Fernando Po.
5. *fuscum* Buckton, Trans. Linn. Soc. Lond. IX : 22 (1905). — **Pl. 11, fig. 168.**	Nigeria.
6. *hyalinipennis* Schmidt, Zool. Anz. XXXVIII : 240 (1911).	East Africa, Biafra.
7. *hypsaucheniana* Distant, Ins. Trans. I : 213 (1908).	Transvaal.
8. *insularis* Schmidt, Zool. Anz. XXXVIII : 238 (1911).	East Africa, Fernando Po.
9. *laticornis* Schmidt, Zool. Anz. XXXVIII : 238 (1911).	East Africa.
10. *leighi* Distant, Ins. Trans. I : 213 (1908).	Transvaal, Uganda.
11. *opacus* Schmidt, Zool. Anz. XXXVIII : 239 (1911).	East Africa, Rio Muni.
12. *rotundicornis* Pelaez, Memb. Fernando Po 23 (1935).	Cameroons.
13. *strigatum* Buckton, Trans. Linn. Soc. Zool. IX : 333 (1905).	Cameroons, Uganda.

194. Genus MAGUVA Melichar

Maguva Melichar, Hom. Ceylon 109 (1903).
Anchonoides Distant, Faun. Brit. Ind. App. 162 (1916).

Characters : The insects of this genus are distinguished by the sharp suprahumerals which are widely separated at their bases and particularly by the posterior process which is more or less sinuate, distinctly angulate at the base and ampliate or lobed beneath. Head subquadrate, wider than high; base arcuate and slightly sinuate; eyes globular; ocelli small, inconspicuous, equidistant from each other and from the eyes and situated somewhat above a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping downward; clypeus extending for half its length below the inferior margins of the genæ, tip rounded. Pronotum convex with long sharp suprahumerals; metopidium nearly vertical, broader than high; median carina strongly percurrent; humeral angles large und blunt; suprahumeral horns variable in size and structure but usually strong, longer than the distance between their bases, extending outward and upward and curving backward, with tips sharp; posterior process heavy, more or less sinuate, arising from high above the scutellum, and having an inferior lobe or plate which is sometimes attached to the scutellum, tip sharp and reaching a little beyond the internal angles of the tegmina; scutellum well exposed, triangular, longer than broad. Tegmina hyaline; basal and costal areas broadly coriaceous and punctate; tip rounded; five apical and three discoidal cells; apical limbus narrow. Hind wings with three apical cells. Legs simple; hind tibiæ feebly spined; all tarsi about equal in length.

Type *horrida* Melichar.

Geographical distribution : The species of this genus are found in Ceylon, Malaya, and the islands of the Archipelago. They are apparently not common and are seldom seen in collections.

1. *brunnea* Funkhouser, Ent. Month. Mag. LXXIII : 100 (1937).	Borneo.
2. *cornuta* Funkhouser, Memb. Mt. Kinabalu 116 (1932).	Borneo.
3 *horrida* Melichar, Hom. Ceylon 109. 1 (1903).	Ceylon.
4. *nigra* Funkhouser, Phil. Journ. Sci. XL : 116 (1929). — **Pl. 11, fig. 169.** *sinuata* Funkhouser, Treubia XV : 1. 121 (1935).	New Guinea.
5. *sordida* Funkhouser, Spolia Ment. 13 (1928).	Siberut Island.
6. *typica* Distant, Faun. Brit. Ind. App. 162 (1916).	Ceylon.
7. *variegata* Funkhouser, Malayan Memb. 4. 8 (1918).	Singapore, Borneo, Sumatra.

195. Genus ANCHON Buckton

Anchon Buckton, Mon. Memb. 214 (1903).
Paraxiphopœus Goding, Journ. N. Y. Ent. Soc. XXXVIII : 2. 89 (1930).

Characters : A distinct and rather remarkable genus at once recognized by the laminate, truncate suprahumerals set far apart and by the posterior process which is sharply angulate at the base. Head subquadrate, twice as broad as high; base strongly arcuate; eyes globular; ocelli large, prominent, equidistant from each other and from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for more than half its length below inferior margins of genæ, tip rounded. Pronotum convex, with strong suprahumerals which are not contiguous at their bases; metopidium nearly vertical, about as broad as high; median carina strongly percurrent; humeral angles small, triangular and sharp; suprahumeral horns strong, heavy, longer than the distance between their bases, flattened, extending outward and upward, tips laminate, truncate and often dentate; posterior process arising from high above the scutellum, sharply angulate at base, often with a tooth at the angle, behind the angle usually straight, slender, acuminate, extending beyond the internal angles of the tegmina and about as far as the end of the abdomen; scutellum entirely exposed, subtriangular, base swollen, tip deeply and broadly notched. Tegmina hyaline; base narrowly coriaceous and punctate; five apical and two discoidal cells; apex diagonally truncate; apical limbus broad. Legs simple; hind tarsi longest.

Type *nodicornis* Germar.

Geographical distribution : This is a large genus with a wide distribution throughout Asia and Africa.

1. *arebiensis* Goding, Journ. N. Y. Ent. Soc. XXXVIII : 89 (1930).	Africa, Northwest Congo.
2. *bilineatus* Stål, Ofv. Vet. Akad. Forh. 95. 2 (1855).	Natal.
3. *boneti* Pelaez, Memb. Fernando Po 33 (1935).	Fernando Po.
4. *brevis* Distant, Faun. Brit. Ind. 52. 2177 (1907).	Ceylon.
5. *brunneus* Funkhouser, Ling. Sci. Journ. XVI : 2. 241 (1937).	Hainan Island, China, Hanchow.
6. *decoratum* Distant, Trans. Ent. Soc. Lond. III : 516 (1914).	West Africa, Lagos.
7. *dilaticornis* Pelaez, Memb. Fernando Po 30 (1935).	Cameroons.

8. *echinatum* Distant, Faun. Brit. Ind. 51. 2174 (1907). — British India, Tenasserim, Myitta.

9. *elegans* Pelaez, Memb. Fernando Po 40 (1935). — Cameroons.

10. *flavipes* Schmidt, Zool. Anz. XXXVIII : 237 (1911). — Africa, Cameroons, Sierra Leone.

11. *formosanum* Kato, Insect World XXXII : 10 (1928). — Formosa.

12. *gestroi* Schmidt, Zool. Anz. XXXVIII : 234 (1911). — Africa.

13. *gracilis* Schmidt, Zool. Anz. XXXVIII : 235 (1911). — Africa, Fernando Po.

14. *gunni* Funkhouser, Can. Ent. LI : 10 (1919). — South Africa, Pretoria.

15. *limbatum* Schmidt, Zool. Anz. XXXVIII : 235 (1911). — Africa.

16. *lineatus* Funkhouser, Ling. Sci. Journ. XVII : 2 (1938). — China, Kwantung.

17. *minor* Melichar, Wien. Ent. Zeit. XXIV : 296. 61 (1905). — East Africa, Bomole.

18. *nodicornis* Germar, Rev. Silb. III : 257. 6 (1835). — South Africa, Cape of Good Hope, Bomole, Natal, Belgian Congo.

19. *nodosus* Goding, Amer. Mus. Novit. 26 (1930). — Sudan.

20. *pilosum* Walker, List Hom. B. M. 606. 18 (1851). — India, Ceylon, China, Japan, Hainan Island.

21. *poensis* Pelaez, Memb. Fernando Po 37 (1935). — Fernando Po.

22. *proximus* Signoret, Ann. Soc. Ent. France VIII : 202. 53 (1860). — Madagascar.

23. *rectangulatum* Kirby, Proc. Linn. Soc. Zool. XXIV : 166 (1903). — India, Ceylon, Mysore.

24. *relatum* Distant, Trans. Ent. Soc. Lond. III : 516 (1914). — Lagos.

25. *remigium* Buckton, Mon. Memb. 215 (1903). — Unknown.

26. *schubotzi* Jacobi, Ergenb. Zentr. Afrik. Exp. IV : 2. 36 (1912). — Africa.

27. *senegalensis* Fairmaire, Rev. Memb. 511. 6 (1846). — Senegal, Pretoria, Transvaal.

28. *ulniforme* Buckton, Mon. Memb. 216 (1903). — **Pl. 11, fig. 170.** — India, Tenasserim, Myitta, Mysore, Java, Sumatra.

29. *vicinus* Signoret, Thoms. Arch. Ent. II : 339. 645 (1858). — Calabar.

196. Genus SPALIRISIS Distant

Spalirisis Distant, Rhynch. Notes 29 (1916).
Planecornua Goding, Journ. N. Y. Ent. Soc. XXXVIII : 90 (1930).

Characters : A genus of large robust insects with strong sharp suprahumerals and a long posterior process which is angulate at the base. Head subquadrate, twice as broad as high; base arcuate and sinuate; eyes globular; ocelli large, conspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for half its length below inferior margins of genæ, tip pointed. Pronotum convex with strong, sharp suprahumerals; metopidium vertical, higher than broad; median carina percurrent; humeral angles large, triangular and blunt; suprahumeral horns long, strong, sharp, usually extending outward and upward but sometimes almost horizontal, sometimes slightly flattened before the tips, longer than the distance between their bases; posterior process arising from high above the scutellum, sharply angulate at the base, often toothed at the angle, behind the angle more or less sinuate, triquerate,

tip acuminate and extending almost to the tips of the tegmina; scutellum entirely exposed, subtriangular, twice as long as broad, tip broadly notched. Tegmina semiopaque, base narrowly coriaceous and punctate; veins strong; five apical and three discoidal cells; apical limbus broad. Legs simple; hind tarsi longest.

Type *alticornis* Jacobi.

Geographical distribution : This is an African genus with four described species.

1. *alticornis* Jacobi, Ergebn. Zentr. Afrik. Exped. 35 (1910).	British East Africa, Uganda, Mutanda, Mpanga, Toro, Ruwenzori.
2. *humilis* Goding, Journ. N. Y. Ent. Soc. XXXVIII : 89 (1930).	Ruwenzori.
3. *infractus* Jacobi, Kil. Exped. 122 (1910).	Kilimandjaro.
4. *nigris* nom. nov. — **Pl. 11, fig. 171.** *majusculum* Distant, (British Museum MS name).	Usambara.

197. GENUS PANTALEON DISTANT

Pantaleon Distant, Rhynch. Notes 327 (1916).
Eupantaleon Kato, Trans. Nat. Hist. Soc. Form. XVIII : 33 (1928).

Characters : A peculiar genus of large insects characterized by the high, arcuate dorsal node on the posterior process and the strongly dentate suprahumerals. Head subquadrate, about as broad as high, usually pubescent; base highly arcuate and sinuate; eyes ovate; ocelli prominent, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus trilobed, the median lobe much the largest, extending for more than half its length below the inferior margins of the genæ, tip broadly rounded. Pronotum convex with strong, toothed suprahumerals; metopidium nearly vertical, broader than high; median carina strongly percurrent; humeral angles small, triangular and pointed; suprahumeral horns heavy, robust, swollen, triquerate, apex strongly dentate; posterior process heavy and elevated into a high, flattened dorsal node, tip suddenly acute and reaching just about to the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina semiopaque, base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip pointed; apical limbus well developed. Legs simple; hind tarsi longest.

Type *montifer* Walker.

Geographical distribution : The species of this genus are not common and seem to be limited to oriental regions.

1. *brunneus* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 45 (1921). — **Pl. 11, fig. 172.**	China, Kiautschau, Chekiang, Kiangsu.
2. *bufo* Kato, Trans. Nat. Hist. Soc. Form. XVIII : 33 (1928).	Formosa.
3. *bulbosus* Funkhouser, Ent. Month. Mag. LIII : 101 (1937).	Borneo.
4. *dorsalis* Matsumura, Cicad. Jap. II : 1815 (1912).	Formosa.
5. *montifer* Walker, List Hom. B. M. 620. 53 (1851).	China, Hong Kong.

198. Genus ANTIALCIDAS Distant

Antialcidas Distant, Rhynch. Notes 326 (1916).

Characters : This genus is very close to the preceding and perhaps is not deserving of separate generic rank. If the two genera are not distinct, then this genus is valid and *Pantaleon* becomes a synonym. The only important difference between *Pantaleon* and *Antialcidas* is in the structure of the suprahumerals which in the former are strongly toothed and in the latter are simple. This difference, however, is conspicuous and noteworthy and seems to be constant, and we are therefore considering it a satisfactory generic character. The other characters are very similar to those of *Pantaleon* and may be briefly listed as follows : Head subquadrate, broader than high; base arcuate; eyes ovate; ocelli inconspicuous, a little farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex with strong, simple suprahumerals; metopidium vertical, broader than high; median carina percurrent; humeral angles small, triangular and pointed; suprahumeral horns strong, triquerate, extending outward and upward, as long or longer than the distance between their bases, tips sharp and without teeth; posterior process elevated into a high, usually triangular dorsal node, much flattened laterally and inclined to be foliaceous, tip suddenly acute and reaching just about to the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina semiopaque; base narrowly coriaceous and punctate; five apical and two discoidal cells; apical limbus narrow. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *trifoliaceus* Walker.

Geographical distribution : *Antialcidas*, like the preceding genus, is limited in distribution to Eastern Asia.

1. *attenuatus* Funkhouser, Rec. Ind. Mus. XXIV : 3. 327 (1922).	India, Sureil, East Himalayas.
2. *erectus* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 47 (1921).	China, Kiautschau.
3. *trifoliaceus* Walker, List Hom. B. M. Suppl. 163 (1858). — **Pl. 11, fig. 173.**	North China, Kiangsu.

199. Genus MAURYA Distant

Maurya Distant, Rhynch. Notes 326 (1916).

Characters : Medium-sized insects with cornute suprahumerals and a more or less elevated flattened posterior process which does not show a high dorsal node. Head subquadrate, broader than high; base arcuate; eyes globular; ocelli large, prominent, a little farther from each other than from the eyes and situated somewhat above a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping downward; clypeus extending for more than half its length below inferior margins of genæ, tip rounded. Pronotum convex with short, heavy, sharp suprahumerals; metopidium nearly vertical, broader than high; median carina strongly percurrent; humeral angles heavy, triangular and blunt; suprahumeral horns stout, triquerate, robust, extending outward and upward, not as long as the distance between their bases, tips pointed; posterior process heavy, laminate, tectiform, tip acute and just reaching the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina

broad, wrinkled, hyaline; base narrowly coriaceous and punctate; five apical and three discoidal cells; tip pointed; apical limbus narrow. Legs simple; hind tarsi longest.

Type *gibbosulus* Walker.

Geographical distribution : *Maurya* is an oriental genus with a rather wide distribution over northern, eastern and southern Asia.

1. *angulatus* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 48 (1921).	China, Kiautschau, Formosa.
2. *arisanus* Kato, Insect World XXXII : 11 (1928).	Formosa.
3. *bicolor* Funkhouser, Ann. Ent. Soc. Amer. XXIX : 2. 246 (1936).	Bengal.
4. *decorata* Funkhouser, Notes d'Ent. Chinoise IV : 2. 29 (1937).	China, Chekiang.
5. *denticula* Funkhouser, Notes d'Ent. Chinoise V : 2 (1938).	China, T'ienmu Shan.
6. *gibbosulus* Walker, Journ. Linn. Soc. Zool. X : 187 (1868).	Macassar.
7. *paradoxus* Lethierry, Ann. Soc. Ent. Belg. XIX : 80 (1876). — **Pl. 11, fig. 174.**	Siberia, West China, Ussuri.
8. *sibiricus* Lethierry, Ann. Soc. Ent. Belg. XIX : 80 (1876).	Siberia, Ussuri.

200. Genus MACHÆROTYPUS Uhler

Machaerotypus Uhler, Proc. U. S. Nat. Mus. XIX : 284 (1896).

Characters : Closely related to the preceding genus but having the suprahumerals reduced to mere folds or ridges or at most only auriculate rather than cornute and in having the laminate posterior process only slightly flattened. Head subquadrate, wider than high; base arcuate and weakly sinuate; eyes large and ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus extending for half its length below inferior margins of genæ, tip rounded and pilose. Pronotum convex with suprahumerals very small, auriculate or ridged; metopidium almost vertical, convex, much broader than high; median carina strongly percurrent; humeral angles heavy, blunt and triangular, extending farther outward than the suprahumerals; suprahumeral horns consisting merely of ridges or folds or short auricular projections; posterior process heavy, slightly laminate, tectiform, and reaching a little beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina opaque or translucent; base coriaceous and punctate; five apical and two discoidal cells; apical limbus well developed. Legs simple; tibiæ strongly pilose; hind tarsi longest.

Type *sellatus* Uhler.

Geographical distribution : This is an Asiatic genus with a rather wide distribution as follows :

1. *brevicornis* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 49 (1921).	Japan.
2. *brunneus* Funkhouser, Rec. Ind. Mus. XXIV : 3. 328 (1932).	India, East Himalayas, Darjeeling, Mungpoo.
3. *complicatus* Melichar, Hom. Ceylon 125. 3 (1903).	Ceylon.
4. *coreanus* Kato, Zool. Soc. Japan 293 (1930).	Korea.
5. *discretus* Melichar, Hom. Ceylon 125. 2 (1903).	Ceylon, India, Peradeniya, Nuwara.

6. *nuwarana* Distant, Faun. Brit. Ind. App. 174. 3382 (1916). — Ceylon, Nuwara.
7. *pallescens* Distant, Faun. Brit. Ind. App. 173. 3381 (1916). — Ceylon, Nuwara.
8. *rubronigris* Funkhouser, Notes d'Ent. Chinoise V : 2. 17 (1938). — **Pl. 11, fig. 175.** — China, T' ienmu Shan.
9. *sellatus* Uhler, Proc. U. S. Nat. Mus. XIX : 284 (1896). — Japan.
10. *vitulus* Lindberg, Pal. Cic. 23 (1927). — Russia.

201. Genus TRICENTRUS Stål

Tricentrus Stål, Analect. Hem. 387 (1866).
Megaloschema Buckton, Mon. Memb. 231 (1903).
Otaris Buckton, Mon. Memb. 249 (1903).
Taloipa Buckton, Trans. Linn. Soc. Lond. IX : 334 (1905).

Characters : This genus belongs to a very interesting group of which species are found both in the Centrotini and in the Gargarini in which the hind trochanters are armed with strong teeth on their internal margins. *Tricentrus* has the posterior process simple, well developed suprahumerals of various types, and the apical veins of the tegmina straight. Various attempts have been made to subdivide this genus, particularly on the basis of differences in the shape and structure of the pronotal horns, but none have proven satisfactory. We can find no constant character which would warrant the splitting off of other genera from this large genus or even the erection of subgenera. Because of the considerable amount of variation within the genus, the characters must be stated in rather general terms. Those characters which seem always to be present and by which the genus may be recognized are as follows : Head subquadrate, wider than high; base arcuate; eyes globular; ocelli prominent, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus extending for half its length below the inferior margins of the genæ. Pronotum convex with well developed suprahumerals; metopidium vertical or sloping, usually wider than high; humeral angles strong and triangular; median carina percurrent; suprahumeral horns varying greatly in size, length, position and structure, but usually strong, simple and extending outward and upward; posterior process strong, impinging on tegmina, generally tectiform and fairly straight with the tip sharp and extending a little beyond the internal angles of the tegmina; scutellum broadly exposed on each side. Tegmina hyaline or subhyaline with the base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip pointed; apical limbus well developed. Legs simple but with the hind trochanters armed with teeth on the inner margins; femora cylindrical; tibiæ triquerate and closely, finely spined; hind tarsi longest.

Type *convergens* Walker.

Geographical distribution : This is one of the largest of all of the membracid genera with species distributed over practically all parts of Asia and the South Sea Islands.

1. *acer* Walker, List Hom. B. M. Suppl. 163 (1858). — Malacca, Papua.
2. *acuticornis* Funkhouser, Phil. Journ. Sci. XV : 1. 22 (1919). — Philippines, Panay, Culasi, Sumatra.
3. *æneus* Distant, Faun. Brit. Ind. App. 167 (1916). — India, East Himalayas, Darjeeling, Assam, Bengal, Tenasserim, Myitta, Malaya.

4. *æquicornis* Funkhouser, Phil. Journ. Sci. XXXIII : 116 (1927).	Philippines, Baguio.
5. *aiyuri* Funkhouser, Ind. Forest Rec. XVII : 5 (1933).	India, Madras.
6. *albescens* Funkhouser, Phil. Journ. Sci. XL : 121 (1929).	Borneo.
7. *albipennis* Kato, Zool. Soc. Jap. 287 (1930).	Formosa.
8. *albipes* Funkhouser, Faun. Sumat. 4 (1927).	Sumatra.
9. *albomaculatus* Distant, Faun. Brit. Ind. 56. 2183 (1907).	India, Bombay, South India, Penang, Malaya, Singapore, Myitta, Tenasserim, Assam, Garo, Sumatra, Hawaii.
10. *allabens* Distant, Faun. Brit. Ind. App. 166. 3367 (1916).	India, East Himalayas, Penang, Borneo, Darjeeling, Perak, China.
11. *altidorsus* Funkhouser, Phil. Journ. Sci. XL : 124 (1929).	Penang.
12. *amurensis* Lindberg, Pal. Cic. 26 (1927).	Russia.
13. *amplicornis* Funkhouser, Ling. Sci. Journ. XVI : 3. 240 (1937).	Hainan Island.
14. *assamensis* Distant, Faun. Brit. Ind. 57. 2186 (1907).	India, Assam, Penang, Singapore.
15. *attenuatus* Funkhouser, Phil. Memb. 388 (1915).	Philippines, Mindanao, Panay.
16. *attenuicornis* Funkhouser, Phil. Journ. Sci. XL : 120 (1929).	Borneo.
17. *auritus* Buckton, Mon. Memb. 249 (1903).	Sumatra, Fort de Kock.
18. *bakeri* Funkhouser, Phil. Journ. Sci. XL : 119 (1929).	Borneo.
19. *banguensis* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 238 (1914).	Banguey Island.
20. *basalis* Walker, List Hom. B. M. 626. 65 (1851). *flavipes* Uhler, Proc. U. S. Nat. Mus. XIX : 284 (1896). *kuyanianus* Kato, I. Ins. Jap. 45 (1933).	China, Hong Kong, Hainan Island, Japan, Formosa.
21. *bergeri* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 151 (1927).	Russia, Vladivostok.
22. *bicolor* Distant, Faun. Brit. Ind. 55. 2181 (1907).	Bombay.
23. *biformis* Kato, Zool. Soc. Jap. 288 (1930).	Formosa.
24. *bifurcus* Distant, Faun. Brit. Ind. App. 165. 3366 (1916).	India, Darjeeling.
25. *bovillus* Distant, Faun. Brit. Ind. App. 164. 3364 (1916).	Burma, Moulmein.
26. *brevicornis* Funkhouser, J. R. A. S. 82 : 214. 26 (1920).	Borneo, Sandakan.
27. *brevis* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 239 (1914).	Banguey, Barkuda, Borneo.
28. *brunneicornis* Funkhouser, Phil. Journ. Sci. XL : 126 (1929).	Philippines, Soemba.
29. *caliginosus* Walker, Journ. Linn. Soc. Lond. I : 93. 46 (1856).	Malacca, Singapore, Siam, Biserat, Bali, Malaya, Sumatra, Borneo.
30. *capreolus* Walker, List Hom. B. M. 627. 66 (1851).	Philippines, Luzon, Laguna, Savei, China, Ningkwo.
31. *carinatus* Funkhouser, Tijd. Ent. LXXX : 125 (1937).	Java.
32. *congestus* Walker, Ins. Saund. 79 (1858).	India, Hindostan, Malaya, Singapore, Penang, Sumatra, West China, Hainan Island.

33. *convergens* Walker, List Hom. B. M. 623. 59 (1851). — **Pl. 11, fig. 176.** — Philippines, Luzon, Los Banos, Malina, Panay, Culasi.

34. *curvicornis* Funkhouser, Ann. Mus. Acad. U.S.S.R. XVIII: 153 (1927). — China, Hwang-Ho.

35. *decurvatus* Funkhouser, Journ. N. Y. Ent. Soc. XII : 238 (1914). — Dutch New Guinea.

36. *depressicornis* Funkhouser, Notes Musee Heude II : 4. 82 (1935). — China, Chusan Island.

37. *divergens* Bierman, Notes Mus. Leid. XXXIII : 44 (1910). — Dutch East Indies.

38. *dyaki* Funkhouser, Ent. Month. Mag. LXXIII : 102 (1937). — Borneo.

39. *euchistus* Distant, Faun. Brit. Ind. App. 164. 3363 (1916). — India, Tenasserim, Myitta.

40. *fairmairei* Stål, Freg. Eug. Res. Ins. 284. 192 (1859). — Philippines, Luzon, Los Banos, Rizal, Laguna, Culasi, Bangalore, Malacca.
tinctoria Buckton, Trans. Linn. Soc. Zool. IX : 334 (1905).

41. *fasciatus* Kato, Insect World XXX : 11. 5 (1928). — Formosa.

42. *fasciipennis* Funkhouser, Notes Phil. Memb. 28 (1918). — Philippines, Vizcaya, Imugan.

43. *femoratus* Walker, Journ. Linn. Soc. Zool. X : 186 (1868). — Celebes, Macassar.

44. *ferruginosus* Funkhouser, Phil. Journ. Sci. XL : 123 (1929). — Penang.

45. *finitimus* Walker, List Hom. B. M. 628. 67 (1851). — China, Hong Kong, Hainan Island.

46. *flavipes* Melichar, Notes Mus. Leid. XXXVI : 112 (1914). — East Indies, Penang.

47. *forticornis* Funkhouser, Phil. Journ. Sci. XL : 118 (1929). — Philippines.

48. *fukiensis* Funkhouser, Notes Musee Heude II : 4. 81 (1935). — China, Hainan Island.

49. *fulgidus* Funkhouser, Phil. Journ. Sci. XL : 122 (1929). — Borneo.

50. *fuscoapicalis* Kato, Insect World XXXII : 5 (1928). — Formosa.

51. *fuscolimbatus* Kato, Insect World XXXII : 8 (1928). — Formosa.

52. *gargaraformis* Kato, Insect World XXXII : 8 (1928). — Formosa.

53. *gibbosulus* Walker, Ins. Saund. 88 (1858). — India, Hindostan, Assam, Calcutta, Malaya, Singapore, Penang, Borneo.

54. *glochidionæ* Kato, Zool. Soc. Jap. 286 (1930). — Formosa.

55. *gracilicornis* Kato, Insect World XXXII : 3 (1928). — Formosa.

56. *gracilis* Kato, Trans. Nat. Hist. Soc. Formosa XIX : 3. 540 (1928). — Formosa.

57. *horizontalis* Distant, Faun. Brit. Ind. App. 164. 3365 (1916). — Burma, Moulmein, Borneo.

58. *hyalinipennis* Kato, Insect World XXXII : 1 (1928). — Formosa, China, Shanghai.

59. *intermedius* Schmidt, Zool. Anz. XXXVIII : 242 (1911). — East Indies.

60. *kamaonensis* Distant, Faun. Brit. Ind. App. 163. 3361 (1916). — India, Kamaon, Bhimtal.

61. *kotoinsulanus* Kato, Insect World XXXII : 4 (1928). — Formosa.

62. *kriegeli* Funkhouser, Memb. Mt. Kinabalu 118 (1932). — Borneo.

63. *laticornis* Funkhouser, Notes Phil. Memb. 27 (1918). — Philippines, Luzon, Vizcaya, Imugen.

64. *latus* Funkhouser, Fauna Sumat. 5 (1927). — Sumatra.

65. *maacki* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVII : 152 (1927). — Siberia.

66. *manilaënsis* Funkhouser, Phil. Journ. Sci. XXXIII : 115 (1927). — Philippines, Manila.

67. *minor* Schmidt, Zool. Anz. XXXVIII : 243 (1911). — East Indies.

68. *minuticornis* Kato, Insect World XXXII : 4 (1928).	Formosa.
69. *minitus* Funkhouser, Rev. Suisse de Zool. XLIII : 2. 195 (1936).	Timor.
70. *mojiensis* Matsumura, Cic. Jap. II : 17. 4 (1916).	Japan, Hokkaido, Honshu.
71. *mushaënsis* Kato, Insect World XXXII : 2 (1928).	Formosa.
72. *naifunpoënsis* Kato, Zool. Soc. Jap. 289 (1930).	Formosa.
73. *nigris* Funkhouser, J.R.A.S. 82 : 212. 25 (1920).	Borneo, Sandakan.
74. *nigroapicalis* Funkhouser, Fauna Sumat. 3 (1927).	Sumatra, Doerien Island.
75. *nigrofrontis* Funkhouser, Phil. Journ. Sci. XL : 125 (1929).	Penang.
76. *nitidus* Funkhouser, Fauna Sumat. 2 (1927).	Sumatra.
77. *nivis* Funkhouser, Memb. Mt. Kinabalu 119 (1932).	Borneo.
78. *okamotoi* Kato, Zool. Soc. Jap. 291 (1930).	Korea.
79. *orcus* Buckton, Mon. Memb. 247 (1903).	Philippines.
80. *orientalis* Funkhouser, Notes Musee Heude II : 4. 83 (1935).	China, Ku-ling.
81. *pallipes* Kato, Insect World XXXII : 6 (1928).	Formosa.
82. *panayensis* Funkhouser, Phil. Journ. Sci. XXXIII : 114 (1927).	Philippines, Panay.
83. *papuaënsis* Funkhouser, Phil. Journ. Sci. XL : 122 (1929).	Papua.
84. *pieli* Funkhouser, Notes Musee Heude 19 (1934).	China, Hainan Island.
85. *pilinervosus* Funkhouser, Journ. Ent. and Zoo. VI : 2. 68 (1914).	Philippines, Los Banos.
86. *pilosus* Funkhouser, Memb. Mt. Kinabalu 120 (1932).	Borneo.
87. *pinguidorsis* Funkhouser, Rec. Australian Mus. XV : 5. 308 (1927).	New South Wales.
88. *plicatus* Funkhouser, Phil. Memb. 387 (1915).	Philippines, Mindanao, Dapitan.
89. *porrectus* Funkhouser, Phil. Journ. Sci. XL : 118 (1929).	Philippines.
90. *projectus* Distant, Faun. Brit. Ind. 55. 2180 (1907).	India, Tenasserim, Myitta, Burma, Moulmein, Calcutta, Philippines, Luzon, Vizcaya, Imugen.
91. *pronus* Distant, Faun. Brit. Ind. App. 166. 3368 (1916).	India, Tura, Garo, Cochin State, Penang.
92. *pubescens* Funkhouser, Phil. Journ. Sci. XL : 127 (1929).	Philippines.
93. *punctatus* Kato, Insect World XXXII : 6 (1928).	Formosa.
94. *repandus* Distant, Faun. Brit. Ind. App. 163. 3362 (1916).	India, Assam, Borneo, Penang.
95. *resectus* Distant, Faun. Brit. Ind. App. 167. 3370 (1916).	Burma, Malaya, Singapore, Penang, Borneo, Perak.
96. *robustus* Funkhouser, Notes Phil. Memb. 26 (1918).	Philippines, Luzon, Banguet, Imugen, Panay, Culasi, Flores.
97. *rufipennis* Funkhouser, Treubia XV : 1. 125 (1935).	Borneo.
98. *samai* Funkhouser, Notes d'Ent. Chinoise IV : 2. 30 (1937).	China, Hainan Island.
99. *selenus* Buckton, Mon. Memb. 247 (1903).	India, Tenasserim, Myitta.
100. *sobrinus* Stål, Analect. Hem. 387 (1866).	Asia.
101. *spinicornis* Funkhouser, Malayan Memb. 6. 15 (1918).	Singapore, Penang, Sumatra.
102. *spinidorsis* Funkhouser, Bornean Memb. 475 (1929).	Borneo, Sumatra.
103. *spininervis* Funkhouser, Phil. Journ. Sci. XXXIII : 115 (1927).	Philippines, Samar.

104. *spinis* Funkhouser, Journ. F.M.S. Mus. XVII : 720 (1935). Federated Malay States.
105. *subangulatus* Distant, Faun. Brit. Ind. 55. 2182 (1907). India, Nilgiri, Bengal, Burma, Moulmein, Rajmahal.
106. *subinermis* Lindberg, Pal. Cic. 24 (1927). Russia.
107. *suluensis* Funkhouser, Phil. Journ. Sci. XL : 125 (1929). Philippines.
108. *taipinensis* Kato, Insect World XXXII : 3 (1928). Formosa.
109. *takaoënsis* Kato, Zool. Soc. Jap. 290 (1930). Formosa.
110. *transversus* Distant. Faun. Brit. Ind. 48. 2171 (1907). India, Assam.
111. *truncaticornis* Funkhouser, Malayan Memb. 8. 17 (1918). Singapore, Borneo.
112. *xiphistes* Kato, Insect World XXXII : 9 (1928). Formosa.
113. *yatsugadakensis* Matsumura, Ins. Mats. IX : 2. 73 (1934). Japan.
114. *brevispinis* Funkhouser, Ling. Sci. Journ. XVII : 2. 206 (1938). China, Kwangtung.
115. *maculatus* Funkhouser, Ling. Sci. Journ. XVII : 2. 202 (1938). China, Kwangtung.
116. *ornatus* Funkhouser, Ling. Sci. Journ. XVII : 2. 205 (1938). China, Canton, Hainan Isl.

202. Genus TRICENTROIDES Distant

Tricentroides Distant, Faun. Brit. Ind. App. 169 (1916).

Characters : This genus is unknown to us. It was founded on a single species from Asia and according to its author is « allied to *Tricentrus* from which it differs by the more slender and longer posterior process, the more rounded apical veins of the tegmina and the peculiarly hyaline nature of the same ». From Distant's description and figure of the type species, we may indicate the more apparent generic characters as follows : Head subquadrate, wider than high ; base nearly straight; eyes globular; ocelli inconspicuous; inferior margins of genæ sloping downward with straight edges; clypeus extending for half its length below inferior margins of genæ. Pronotum convex with strong, sharp suprahumerals; metopidium vertical, broader than high; median carina percurrent; humeral angles large, triangular and blunt; suprahumeral horns strong, sharp, longer than the distance between their bases and extending outward and upward; posterior process long, slender, triquerate, tectiform, acuminate, extending well beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina hyaline; base narrowly coriaceous and punctate; apex rounded; five apical and two discoidal cells; apical limbus narrow. Legs simple; hind tarsi longest. We are copying Distant's figure for our illustration.

Type *proprius* Distant.

Geographical distribution : The genus is known only from the type species.

1. *proprius* Distant, Faun. Brit. Ind. App. 169 (1916). — **Pl. 11, fig. 177.** India, Assam.

203. Genus EUMONOCENTRUS Schmidt

Eumonocentrus Schmidt, Zool. Anz. XXXVIII : 241 (1911).
Beninia Distant, Trans. Ent. Soc. Lond. III : 517 (1914).

Characters : Large, conspicuous insects characterized by the erect suprahumerals which are contiguous or partly united at their bases. Head subquadrate, about twice as broad as high; base

highly arcuate and weakly sinuate; eyes globular; ocelli large, conspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus deflexed, extending for more than half its length below inferior margins of genæ. Pronotum convex, subconical, with erect contiguous or united suprahumerals; metopidium conical, higher than wide; median carina percurrent; humeral angles triangular and blunt; suprahumeral horns erect, usually grown together at their bases, tips contiguous and blunt; posterior process long, slender, straight or only slightly sinuate, impinging on tegmina, tip acute and reaching beyond the internal angles of the tegmina; scutellum broadly exposed, triangular, tip bifurcate. Tegmina hyaline; base broadly coriaceous and punctate; veins strong; five apical and two discoidal cells; apical limbus well developed. Legs simple; hind trochanters unarmed; hind tarsi longest.

Type *erectus* Schmidt.

Geographical distribution : This is an African genus with the species distributed as follows :

1. ***bifurcus*** Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 148 (1927). — **Pl. 11, fig. 178.** — Africa, Victoria Nyanza.
2. ***erectus*** Schmidt, Zool. Anz. XXXVIII : 242 (1911). — Africa, Kameroons.
3. ***lamborni*** Distant, Trans. Ent. Soc. Lond. III : 517 (1914). — Africa, Lagos, Oni.

204. GENUS CRITO DISTANT

Crito Distant, Rhynch. Notes 43 (1916).

Characters : If we have correctly identified the small, inconspicuous insect which we believe is Distant's type of this genus, it is close to the representatives of *Ebhul* on the one hand, and to *Acanthucus* on the other, but belongs to a different tribe from either, and seems to have distinct generic characters as follows : Head subquadrate, a little broader than high; base highly arcuate and weakly sinuate; eyes ovate; ocelli small, inconspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ weakly sinuate; clypeus trilobed, the median lobe much the largest, extending for more than half its length below inferior margins of genæ, tip rounded; pronotum convex, with small suprahumerals; metopidium almost vertical, about as high as broad; median carina faintly percurrent; humeral angles strong, triangular and blunt; suprahumeral horns small, triangular and sharp; posterior process heavy, very strongly sinuate or waved, tip acute and extending well beyond the internal angles of the tegmina but not reaching the apex of either tegmina or abdomen; scutellum narrowly exposed on each side. Tegmina subhyaline and mottled; basal and costal areas narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; apical limbus narrow. Legs simple; hind tarsi longest.

Type *festivus* Distant.

Geographical distribution : This genus is known only from the type species from Queensland.

1. *festivus* Distant, Rhynch. Notes 43 (1916). — **Pl. 11, fig. 179.** — Queensland.

GENERA OF THE TRIBE HYPSAUCHENINI DISTANT

I. *Posterior process with a dorsal subapical node*

A. *Apex of head trilobed* . . . . HYPSAUCHENIA Germar.

B. *Apex of head truncate*

1. *Anterior pronotal process recurved; venation of tegmina normal*

a. *Distal end of tegmina truncate* . . . . PYRGAUCHENIA Breddin.

aa. *Distal end of tegmina rounded* . . . . GIGANTORHABDUS Schmidt.

2. *Anterior pronotal process straight; venation of tegmina irregular* . . HYPSOLYRIUM Schmidt.

II. *Posterior process without a dorsal subapical node*

A. *Anterior pronotal process branched and recurved* . . . . PYRGONOTA Stål.

B. *Anterior pronotal process not branched or recurved*

1. *Anterior pronotal process nodose; base of head not bituberculate* . . . FUNKHOUSERELLA Schmidt.

2. *Anterior pronotal process simple and porrect; base of head bituberculate.* HYBANDOIDES Distant.

205. GENUS HYPSAUCHENIA GERMAR

Hypsauchenia Germar, Rev. Silb. III : 230 (1835).

Characters : Large, bizarre and rather remarkable insects with a high anterior pronotal horn usually forked at the tip, a mesonotum bearing strong teeth, and being characterized particularly by the trilobed head and the dorsal, subapical node on the posterior process. Head subquadrate, about as broad as high, roughly sculptured, apex more or less trilobed; base highly arcuate and strongly bituberculate; eyes globular; ocelli large, prominent, conspicuous, protruding, four times as far from each other as from the eyes and situated in the upper, outer corners of the head, close to the eyes and to the basal margin and well above a line drawn through centers of eyes; inferior margins of genæ extended in lobes; clypeus very long, extending for three-fourths its length below the inferior margins of the genæ. Pronotum elevated into a high anterior horn, usually curving backward and bifurcate at the tip; metopidium conical, vertical, tricarinate, higher than wide; median carina strongly percurrent; humeral angles large, triangular and blunt; mesonotum extended into teeth or lobes; posterior process strong, tectiform, impinging on tegmina and bearing a large, rounded, bilaterally flattened, subapical dorsal node, tip suddenly acute and reaching just to the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina long, narrow, coriaceous and opaque; veins indistinct; five apical and three or four discoidal cells; tip pointed and diagonally truncate; apical limbus broad. Legs simple; hind tarsi longest.

Type *hardwickii* Kirby.

Geographical distribution : An Asiatic genus found in India, Malaya and the East Indies.

1. *asper* Buckton, Mon. Memb. 212 (1903). — India.
2. *bulbosa* Buckton, Mon. Memb. 211 (1903). — Malaya, Perak.
3. *gibbosa* Distant, Faun. Brit. Ind. 12. 2115 (1907) — Burma.
4. *hardwickii* Kirby, Mag. Nat. Hist. II : 20.56 (1829). — **Pl. 11, fig. 180.** — India, Nepal, Sikhim, Naga, Khasi, Assam, Darjeeling, Pegu.
   floralis Buckton, Mon. Memb. 210 (1903).
   pygmæa Buckton, Mon. Memb. 211 (1903).
5. *kempi* Distant, Faun. Brit. Ind. App. 148. 3337 (1916). — India, Assam, Burma, Sadon.
6. *manni* Distant, Faun. Brit. Ind. App. 149. 3338 (1916). — India, Darjeeling, Pussumbing.
7. *recurva* Funkhouser, Phil. Journ. Sci. XL : 112 (1929). — Java.
8. *subfusca* Buckton, Mon. Memb. 211 (1903). — India, Assam, Sikhim.

206. Genus PYRGAUCHENIA Breddin

Pyrgauchenia Breddin, Celeb. Naturw. Ges. XXIV : 126 (1901).
Pyrgophyllium Breddin, Soc. Ent. XVII : 91 (1902).
Pyrgolyrium Breddin, Soc. Ent. XVII : 92 (1902).
Hypsophyllium Schmidt, Soc. Ent. XLI : 6. 24 (1926).

Characters : This genus is closely related to the preceding but the insects are usually smaller and the head is not trilobed. It is particularly characterized by the normal venation and by the truncate tegmina. Head subquadrate, about as wide as high; base high and bituberculate; eyes somewhat flattened laterally; ocelli large, conspicuous, much farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus extending for more than half its length below inferior margins of genæ. Pronotum elevated into a high, anterior, bifurcate pronotal horn which is usually curved backward; metopidium vertical, higher than broad; median carina percurrent; humeral angles weak and rounded; mesonotum lobate or toothed at sides; posterior process heavy, tectiform, with a rounded elevation before the apex, tip sharp and just reaching the internal angles of the tegmina on which it impinges for its entire length; scutellum well exposed on each side. Tegmina long, semiopaque, coriaceous and punctate on basal two-thirds; veins indistinct except in apical region; apex obliquely truncate; five apical and two discoidal cells; apical limbus well developed especially in anal region. Legs slender, simple; hind tarsi longest.

Type *sarasinorum* Breddin.

Geographical distribution : This genus seems to be limited to the East Indian Islands.

1. ***angulata*** Funkhouser, Memb. Mt. Kinabalu 114 (1932).	Borneo.
2. ***brevinota*** Funkhouser, Memb. Mt. Kinabalu 115 (1932).	Borneo.
3. ***brunnea*** Funkhouser, Memb. Mt. Kinabalu 113 (1932). — **Pl. 11, fig. 181.**	Borneo.
4. ***colorata*** Distant, Ann. Mag. Nat. Hist. XVI : 94. 326 (1915).	Borneo.
5. ***cornuta*** Goding, Amer. Mus. Novit. 26 (1930).	Borneo.
6. ***færsteri*** Breddin, Soc. Ent. XVII : 91 (1902).	Java.
7. ***fulmeki*** Schmidt, Soc. Ent. XLI : 6. 23 (1926).	Sumatra.
8. ***jugulata*** Buckton, Trans. Linn. Soc. Lond. IX : 9. 332 (1905). *breddini* Schmidt, Stet. Ent. Zeit. LXVII : 370 (1906).	Sumatra.
9. ***kinabalense*** Breddin, Soc. Ent. 91 (1902).	Borneo, Sumatra, Java, Bali.
10. ***sarasinorum*** Breddin, Celeb. Naturw. Ges. XXIV : 126 (1901). *guttiplaga* Walker, MS.	Celebes.
11. ***suberecta*** Distant, Ann. Mag. Nat. Hist. XVI : 94. 325 (1915).	Celebes.
12. ***wallacei*** Breddin, Soc. Ent. XVII : 91 (1902).	Borneo.

207. Genus GIGANTORHABDUS Schmidt

Gigantorhabdus Schmidt, Stet. Ent. Zeit. 371 (1906).

Characters : A remarkable genus of very large insects with single bifurcate anterior pronotal horns, with the dorsal lobe of the posterior process very near the apex, and with the tips of the tegmina

rounded. The insects are at once noted because of their size. Head subquadrate, roughly sculptured, about as long as high; base arcuate and weakly bituberculate, sulcate between the tubercles; eyes somewhat flattened laterally; ocelli very large, prominent, protruding, four times as far from each other as from the eyes and situated close to the outer, upper corners of the head, well above a line drawn through the centers of the eyes; inferior margins of genæ extending downward in long tongues or flattened plates on each side of the clypeus; clypeus long, narrow, extending only slightly below the inferior margins of the genæ, tip rounded and pilose. Pronotum extended upward into a single high conical or flattened horn which is branched at the end to form two extensions curved backward and dilated at the tips; metopidium vertical, carinate, higher than broad; median carina strongly percurrent; humeral angles heavy, triangular and blunt; anterior pronotal horn high, bifurcate, flattened laterally and bent backward; inferior margins of mesonotum bearing large, blunt teeth; posterior process heavy, tectiform, impinging on tegmina, with a high dorsal node near the apex, tip suddenly sharp and extending well beyond the internal angles of the tegmina but not reaching the end of the abdomen or the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, opaque, mottled; basal and costal areas broadly coriaceous and punctate; veins distinct; venation of apical area inclined to be irregular but usually showing five apical and three discoidal cells; apex rounded or bluntly pointed, not truncate; apical limbus very broad. Legs heavy, simple; femora cylindrical; tibiæ triquerate or somewhat flattened; hind tarsi longest.

Type *enderleini* Schmidt.

Geographical distribution : This genus is known only from the type species which is found in Borneo.

1. *enderleini* Schmidt, Stet. Ent. Zeit. 372. 67 (1906). — **Pl. 11, fig. 182.** Borneo.

208. Genus HYPSOLYRIUM Schmidt

Hypsolyrium Schmidt, Soc. Ent. XLI : 6 (1926).

Characters : This genus was erected to accommodate Stål's *uncinata* and has remained monotypic since its original description. We have never seen the type species but from Stål's description and from Distant's excellent figure (Distant, 1907, p. 12) it would appear to differ from its nearest relatives in having a straight, unbranched anterior pronotal horn and in having very irregular venation in the tegmina. These characters would seem sufficient to validate the genus and Goding writes (in correspondence) that he is convinced that the genus is good. We are therefore recognizing it and noting such generic characters as may be gleaned from published descriptions and figures as follows : Head subquadrate, wider than high; base arcuate; eyes globular; ocelli large, prominent, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded and lobate; clypeus extending for more than half its length below inferior margins of genæ. Pronotum extending upward in an erect anterior horn which is not bifurcate and which is not curved backward over the body; metopidium conical, about as high as the width at the base; median carina percurrent; humeral angles small and triangular; anterior pronotal horn erect or leaning slightly forward, flattened laterally, notched at distal posterior margin, not bifurcate at the tip; posterior process heavy, tectiform, elevated into an arcuate dorsal node before the apex, tip sharp and just reaching the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina long, narrow, semiopaque; basal and costal areas broadly coriaceous and punctate; veins distinct; venation,

particularly in the apical region, very irregular; tip pointed, obliquely truncate on anal margin; apical limbus broad. Legs simple; hind tarsi longest.

Type *uncinata* Stål.

Geographical distribution : This genus is represented only by the type species from India and we are copying Distant's figure of this insect for our illustration.

1. *uncinata* Stål, Bid. Memb. Kan. 283. 1 (1869). — **Pl. 11, fig. 183.** India, Pussumbing, Nepal, Darjeeling.

209. Genus PYRGONOTA Stål

Pyrgonota Stål, Hem. Phil. 730 (1870).

Characters : This remarkable and very interesting genus differs from the four preceding genera of this tribe by having no dorsal node on the posterior process. It may be separated from the two following genera of the tribe by the long, branched, anterior pronotal horn which curves backward over the body. Head subquadrate, as broad as high; base arcuate but not tuberculate; eyes flattened laterally; ocelli large, prominent, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus extending for about half its length below the inferior margins of the genæ. Pronotum extended upward into a high anterior horn which is branched near the tip and curves backward; metopidium vertical, higher than the breadth at base; median carina percurrent; humeral angles triangular and blunt; anterior pronotal horn long, slender, conical at base, slightly flattened in the middle, and branched at the tip to form two spreading arms which are usually foliaceous near the extremities and curve backward over the body; posterior margin of anterior pronotal horn generally spinose or dentate; mesonotum strongly toothed on lateral margin; posterior process heavy, simple, tectiform, slightly sinuate, impinging on tegmina, tip sharp and extending just about to the internal angles of the tegmina; scutellum very faintly exposed on each side. Tegmina long, narrow, semiopaque; basal and costal areas broadly coriaceous and punctate; veins distinct and inclined to be curved in the apical region; five apical and three discoidal cells; tip pointed; apical limbus narrow and wrinkled. Legs simple; hind tarsi longest.

Type *tumida* Stål.

Geographical distribution : This is strictly a Philippine genus and no species has been found outside of those islands.

1. *bifoliata* Westwood, Proc. Zool. Soc. Lond. 130 (1837). — **Pl. 11, fig. 184.** Philippines, Luzon, Los Banos, Culasi, Sargao, Zambales.
2. *bifurca* Stål, Hem. Phil. 731. 4 (1870). Philippines, Luzon, Baguio, Banguet, Davao.
3. *fenestrata* Bergroth, Notulæ Ent. V : 105 (1925). Philippines, Surigao, Dinagat.
4. *longiturris* Funkhouser, Notes Phil. Memb. 23 (1918). Philippines, Luzon, Mt. Maquiling.
5. *noditurris* Funkhouser, Phil. Journ. Sci. XVIII : 6. 684 (1921). Philippines, Mindanao, Surigao.

6. *philippina* Stål, Hem. Phil. 730. 2 (1870). — Philippines, Culasi, Panay, Siquijor.

7. *semperi* Stål, Hem. Phil. 731. 5 (1870). — Philippines, Panay, Antique, Culasi.

8. *tumida* Stål, Hem. Phil. 730. 1 (1870). — Philippines.

210. Genus FUNKHOUSERELLA Schmidt

Funkhouserella Schmidt, Soc. Ent. XLI : 6. 24 (1926).

Characters : All of the species of this genus were originally described under the genus *Pyrgonota* but they differ from the members of that genus by having the anterior pronotal horn bulbous or nodose and unbranched and not curving backward over the body. On the basis of these characters, Schmidt has seen fit to place them in a distinct genus. This genus, aside from the above mentioned characters, is close to Pyrgonota, to which it is undoubtedly nearly related, but the bizarre and grotesque structures of the anterior process make it at once recognizable. Head subquadrate, a little broader than high, convex, punctate and often pubescent; base arcuate and sinuate but never tuberculate; eyes ovate; ocelli large, conspicuous, twice as far from each other as from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping downward to form flat plates on each side of the clypeus; clypeus projecting very little below inferior margins of genæ, tip rounded or truncate. Pronotum extended upward into a high anterior horn which is very variable in shape and structure; metopidium conical, about as high as its breadth at base; median carina obsolete; humeral angles weak and rounded; anterior pronotal horn projecting upward or forward, decorated with bulbs, nodes or protuberances and not branched or curving backward; posterior process tectiform, impinging on tegmina, tip sharp and reaching a little beyond the internal angles of the tegmina; scutellum very narrowly exposed on each side. Tegmina long, narrow, semiopaque; basal and costal areas broadly coriaceous and punctate; veins indistinct; five apical and three or four discoidal cells; tip sharply pointed; no apical limbus. Legs heavy; tibiæ more or less foliaceous; hind tarsi very much longer than either of the other two pairs.

Type *pinguiturris* Funkhouser.

Geographical distribution : This genus, like the preceding, seems to be found chiefly in the Philippines, but one species has been described from the Malay Peninsula and one from an island off the south coast of China.

1. *arborea* Funkhouser, Ling. Journ. Sci. XVI : 2. 242 (1937). — Hainan Island.
2. *binodis* Funkhouser, Phil. Journ. Sci. XXXIII : 110 (1927). — Philippines, Luzon.
3. *brevifurca* Funkhouser, Phil. Journ. Sci. XXXIII : 110 (1927). — Philippines, Luzon.
4. *bulbicornis* Funkhouser, F.M.S. Mus. XIII : 253 (1927). — Malaya, Selangor.
5. *bulbiturris* Funkhouser, Phil. Journ. Sci. XXXIII : 109 (1927). — **Pl. 11, fig. 185.** — Philippines, Luzon.
6. *pinguiturris* Funkhouser, Phil. Memb. 374 (1915). — Philippines, Luzon, Mt. Maquiling.
7. *sinuata* Funkhouser, Phil. Journ. Sci. XL : 111 (1929). — Philippines, Luzon, Ripang

211. Genus HYBANDOIDES Distant

Hybandoides Distant, Ann. Mag. Nat. Hist. XVI : 327 (1915).
Platyceras Schmidt, Soc. Ent. XLI : 6. 22 (1926).

Characters : A small but very distinct genus characterized by the simple, porrect anterior pronotal horn and bituberculate base of the head. Head subquadrate, wider than high; base arcuate, sinuate and bituberculate; eyes globular and protruding; ocelli small but conspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping downward; clypeus large, trilobed, extending for two-thirds its length below inferior margins of genæ, tip broad and truncate. Pronotum extended forward and upward into a simple, porrect horn; metopidium vertical, twice as broad as high; median carina faintly percurrent; humeral angles heavy, triangular and blunt; anterior pronotal horn heavy, somewhat flattened laterally, sharply carinate above and below, extending forward over the head, length variable; posterior process slender, straight, impinging on tegmina, tip sharp and just reaching the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina long, narrow, semiopaque; basal and costal areas broadly coriaceous, punctate and pubescent; veins distinct but venation very irregularly arranged particularly in the apical region; usually five apical cells but an indefinite number of discoidal cells; tip sharply pointed; no apical limbus. Legs simple; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *horizontalis* Distant.

Geographical distribution : This genus has been found only in the Dutch East Indies.

1. *acuticornis* Schmidt, Soc. Ent. XLI : 6. 23 (1926).	Sumatra, Java.
2. *borneensis* Schmidt, Soc. Ent. XLI : 6. 22 (1926).	Borneo.
3. *horizontalis* Distant, Ann. Mag. Nat. Hist. XVI : 94. 327 (1915).	Borneo, Mt. Kinabalu.
4. *laticornis* Schmidt, Soc. Ent. XLI : 6. 22 (1926).	Mentawei Islands, Sumatra.
5. *sumatrensis* Funkhouser, Faun. Sumat. 15 (1927). — **Pl. 11, fig 186.**	Sumatra, Java.

GENERA OF THE TRIBE CENTROCHARESINI GODING

I. *Dorsum of posterior process nodulate*
  A. *Scutellum entirely exposed* . . . . Centrochares Stål.
  B. *Scutellum covered except narrowly at sides* . . . . Negus Jacobi.
II. *Dorsum of posterior process smooth* . . . . Sinenodus Goding.

212. Genus CENTROCHARES Stål

Centrochares Stål, Analect. Hem. 386 (1866).

Characters : The insects of this genus bear a strong superficial resemblance to those of the New World genus *Pterygia.* They are rough and spinose with broad spreading suprahumerals and more or less foliaceous head and legs. The scutellum, however, is fully developed and entirely exposed and the sides of the of the mesonota are armed with teeth. Head subtriangular, very roughly

sculptured; base arcuate and feebly sinuate; eyes globular; ocelli large, prominent, twice as far from each other as from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ subfoliaceous, extending downward in lobes on each side of the clypeus and giving a trilobed appearence to the face; clypeus broad, extending for three-fourths its length below the inferior margins of the genæ, tip rounded or truncate. Pronotum convex, very rough and spinose; metopidium vertical, broader than high, and bearing short, irregular spines; median carina percurrent and spinose; humeral angles heavy, triangular and spinose or dentate; suprahumeral horns well developed, projecting outward and upward, longer than the distance between their bases, irregularly covered with short spines, tips usually more or less foliaceous and carinate; posterior process heavy, sinuate, rough, spinose, slightly elevated above scutellum, bearing rough, irregular nodes on its dorsal surface, the subapical elevation largest and ridged, tip blunt and extending almost to the tips of the tegmina; scutellum almost entirely exposed, subtriangular, longer than broad, tip broadly notched. Tegmina long, narrow and opaque; basal and costal areas narrowly coriaceous and punctate; veins distinct and nodulate; five apical and two discoidal cells; tip pointed; apical limbus broad. Legs heavy, tibiæ distinctly foliaceous; all tarsi about equal in length.

Type *horrificus* Westwood.

Geographical distribution : *Centrochares* is definitely a genus of Oceanica with more species found in the Philippines than in any other region.

1. *borneensis* Distant, Rhynch. Notes 314 (1916).	Borneo, Sandakan.
2. *bucktoni* Distant, Rhynch. Notes 314 (1916). *postica* (female) Buckton, Mon. Memb. 70 (1902).	Philippines.
3. *foliatus* Funkhouser, Phil. Journ. Sci. XL : 113 (1929).	Borneo, Mowong.
4. *horrificus* Westwood, Proc. Zool. Soc. Lond. 130 (1837). — **Pl. 12, fig. 187.** *spinula* Buckton, Mon. Memb. 73 (1903).	Philippines, Luzon, Panay, Laguna, Culasi, Rizal, Samar, Davao.
5. *posticus* Buckton, Mon. Memb. 70 (1903).	Philippines, Culasi.
6. *ridleyanus* Distant, Ann. Mag. Nat. Hist. XVI : 94. 328 (1915).	Malaya, Singapore, Selangor, Kuala Lumpur.
7. *spiniferus* Funkhouser, Faun. Sumat. 19 (1927).	Sumatra.

213. Genus NEGUS Jacobi

Negus Jacobi, Kil. Exp. XII : 121 (1910).

Characters : The type species of *Negus* shows characters which would seem to warrant its being placed in a distinct genus. The structure of the pronotal process is quite different from that of the other two genera of the tribe and the scutellum is only narrowly exposed on each side. The characters which would appear to be generic are as follows. Head subquadrate, broader than high; base arcuate; eyes globular; ocelli large, prominent, farther from each other than from the eyes and situated about on a line drawn though centers of eyes; inferior margins of genæ extended into pointed lobes which give a trilobed appearance to the apical outline of the face; clypeus broad, extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex, very rough and spinose; metopidium vertical, higher than broad, rough and spinose; humeral angles large and triangular; median carina percurrent; suprahumeral horns strong, spinose, extending upward and outward, longer than the

distance between their bases, tips more or less swollen, spinose and multicarinate; posterior process heavy, sinuate, tectiform, nodulate above with the anterior node highest, roughly spinose, tip acute and extending beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina subhyaline; base narrowly coriaceous and punctate; veins heavy and spined; tip pointed; five apical and two discoidal cells; apical limbus broad. Legs heavy, femora cylindrical, tibiæ triquerous or somewhat flattened; hind tarsi longest.

Type *asper* Jacobi.

Geographical distribution : This genus is known only from the African species which was described from the type and which has since been reported by several authors.

1. *asper* Jacobi, Kil. Exp. XII : 7. 121 (1910). — **Pl. 12, fig. 188.** Africa, Kilimandjaro, Spanish Guinea.

214. Genus SINENODUS Goding

Sinenodus Goding, Journ. N. Y. Ent. Soc. XXXIX : 311 (1931).

Characters : This is a monotypic genus, the type species of which we have not seen. Moreover, no figure of the species has ever been published. However, Goding's good descriptions, both of the genus and of the type species, make it easy to present a generic diagnosis as follows : Head nearly square, roughly sculptured; ocelli conspicuous, farther from each other than from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ broadly foliaceous. Pronotum convex, rough, carinate and nodulate but not spinose; metopidium vertical; median carina strongly percurrent; suprahumeral horns strong, heavy, quadrangular, extending upward, outward and slightly inclined forward, tips broad and truncate; mesothorax with two teeth on each side; posterior process long, slender, slightly sinuate, destitute of dorsal nodes, tip sharp and extending beyond the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina long, very narrow, semiopaque; veins strong and colored; five apical and two discoidal cells; tip pointed; no apical limbus. Legs strong; femora cylindrical; tibiæ flattened and subfoliaceous.

This genus is apparently closely related to the other two genera of the tribe but differs in not being strongly spinose and in having the posterior process long, tricarinate and without dorsal nodes, and in having vitreous tegmina and strongly dilated tibiæ.

Type *gracilis* Goding.

Geographical distribution : The type species, which is the only species thus far described in the genus, is from West Australia.

1. *gracilis* Goding, Mon. Australian Memb. 33 (1903). Australia, Beverly.

GENERA OF THE TRIBE MICREUNINI DISTANT

I. *Lateral branches of anterior horn simple*

A. *Posterior process not impinging on tegmina; scutellum entirely exposed; tips of horns simple*

1. *Anterior pronotal horn porrect; posterior process arising from near base of pronotum* . . . . MICREUNE Walker.

2. *Anterior pronotal horn erect; posterior process arising high above scutellum* . LEPTOBELUS Stål.

B. *Posterior process impinging on tegmina; scutellum only narrowly exposed on each side; tips of horns dilated* . . . . EUTRYONIA Goding.

II. *Lateral branches of anterior horn rebranched* . . . . ELAPHICEPS Buckton.

215. GENUS MICREUNE WALKER

Micreune Walker, Journ. Linn. Soc. Lond. I. 93 (1856).

Characters : A small genus of large conspicuous insects characterized by the long porrect anterior horn which bears slender recurving branches, and the posterior process which usually arises from near the base of the pronotum but does not conceal the scutellum or impinge on the tegmina. Head subquadrate, wider than high; base weakly arcuate and sinuate; eyes very large, globular and protruding; ocelli large, conspicuous, located near the upper outer angles of the head, four times as far from each other as from the eyes and situated far above a line drawn through centers of eyes; inferior margins of genæ short and sinuate; clypeus very large, extending for at least three-fourths its length below inferior margins of genæ, diamond-shaped, very broad in the middle, tip pointed. Pronotum elevated into a porrect horn which is branched at the top; metopidium cone-shaped, wider than high; median carina obsolete; humeral angles large, triangular and blunt; anterior pronotal horn turrete, porrect, extending upward and forward over the head, branched at the top into two slender branches longer than the horn itself which bend backward over the body; posterior process slender, arising from near the base of the pronotum, nearly straight, tip sharp and reaching beyond the internal angles of the tegmina; scutellum entirely exposed, much longer than broad, tip bifurcate. Tegmina long, narrow, semiopaque; base narrowly coriaceous and punctate; five apical and two discoidal cells; tip rounded; apical limbus narrow. Legs slender and simple; hind tarsi longest.

Type *formidenda* Walker.

Geographical distribution : This is a Malayan genus with one doubtful species reported from East Africa.

1. *electa* Melichar, Wien. Ent. Zeit. XXIV : 296. 58 (1905). — Dutch East Africa, Umani, Usambara.
(Possibly a *Monocentrus*).

2. *formidenda* Walker, Journ. Linn. Soc. Lond. I : 93. 49 (1856). — **Pl. 12, fig. 189.** — Borneo, Sarawak, Malaya, Singapore.
quadrilinea Walker, MS. (*fide* Distant 1915).

3. *macularum* Buckton, Mon. Memb. 214 (1903). — Borneo, Perak, Sandakan, Malaya, Sumatra.

4. *metuenda* Walker, Journ. Linn. Soc. Lond. I : 164. 124 (1857). — Borneo.

216. GENUS LEPTOBELUS STÅL

Leptobelus Stål, Hem. Afr. IV : 86 (1866).

Characters : A very distinct and rather striking genus characterized particularly by the fact that the posterior process arises from high up on the anterior pronotal horn just below or between the lateral branches. Head subquadrate, wider than high; base lightly arcuate and sinuate; eyes very

large, globular and protruding; ocelli large, prominent, twice as far from each other as from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ weakly lobed and projecting slightly over the edges of the clypeus; clypeus extending for half its length below the inferior margins of the genæ, tip rounded. Pronotum elevated into an erect conical anterior horn which is branched at the top; metopidium convex, vertical, broad at the base and narrow at the top; no median carina; humeral angles broad and blunt; anterior pronotal horn conical, erect, branched at the top into two lateral branches which usually extend directly outward, tips simple and sharp; posterior process long, slender, usually decurved; arising from high on the pronotal horn, usually just below the lateral branches, tip acuminate and reaching beyond the internal angles of the tegmina but not to their tips; scutellum entirely exposed, long, narrow, reaching almost to the end of the clavus, generally swollen at the base and often tomentose. Tegmina broad, hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad. Hind wings with four apical cells. Legs slender and simple; hind tarsi longest.

Type *dama* Germar.

Geographical distribution : This is an Asiatic genus with a wide distribution in India, the East Indies, Malaya, China and the Philippines.

1. *dama* Germar, Rev. Silb. III : 258. 7 (1835). — **Pl. 12, fig. 190.**	India, Java, Borneo, Sumatra, Philippines.
2. *decurvatus* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 43 (1921).	China, Kiautschau, India, Sikhim.
3. *elevatus* Funkhouser, Phil. Journ. Sci. XVIII : 6. 685 (1921).	Philippines, Palawan, Puerto Princesa.
4. *flexicornis* Walker, Ins. Saund. 78 (1858).	India, Punjab, North Hindostan, West China.
5. *gazella* Fairmaire, Rev. Memb. 510. 2 (1846).	East Indies, India, Assam, Naga Hills, Burma, Pusa, North China.
6. *nigris* Funkhouser, Bornean Memb. 473 (1929).	Borneo.
7. *sauteri* Schumacher, Saut. Formosa 115 (1915).	Formosa.

217. Genus EUTRYONIA Goding

Eutryonia Goding, Mon. Aus. Memb. 34 (1903).
Gelastorrhachis Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 372 (1906).

Characters : This genus is very distinct from the other genera of the tribe because of the fact that the posterior process lies close to the body, almost concealing the scutellum and impinging on the tegmina and because the anterior pronotal horn is dilated or much thickened at the apex. Head subquadrate, broader than high; base arcuate and sinuate and sometimes weakly bituberculate; eyes very large, globular and protruding; ocelli large, conspicuous, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ short, rounded and weakly lobate; clypeus trilobed, the median lobe much the largest, extending for more than half its length below inferior margins of genæ, tip rounded. Pronotum elevated into a high, conical or cylindrical anterior horn which is usually forked at the top; metopidium vertical, about as high as its

width at the base; median carina faintly percurrent; humeral angles broad and blunt; anterior pronotal horn erect, heavy, conical or cylindrical, usually branched at the top into two lateral branches or nodes which are very variable in size and shape but are always dilated, bulbous or swollen and generally extend outward and backward; posterior process slender, triquerate, sinuate, impinging on tegmina, tip sharp and reaching beyond the end of the abdomen and almost to the tips of the tegmina; scutellum very narrowly exposed on each side. Tegmina hyaline; basal and costal areas coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip rounded; apical limbus well developed. Legs simple; hind tarsi longest.

Type *monstrifera* Walker.

Geographical distribution : This genus is limited to the Australian region as indicated by the localities given for the following species :

1. *clavata* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 373 (1906). — Queensland, Kuranda.
2. *diadema* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 373 (1906). — Queensland, Kuranda.
3. *gracilis* Goding, Journ. N. Y. Ent. Soc. XXXIV : 243 (1926). — Queensland, Australia.
4. *monstrifera* Walker, Ins. Saund. 80 (1858). — **Pl. 12, fig. 191.** — Australia, New South Wales, Hunt River, Moreton Bay, Queenland, Rockhampton, Tweed River, North Australia.
   pondifer Walker, Journ. Ent. I : 316 (1862).
   cassis Buckton, Mon. Memb. 60 (1903).

218. Genus ELAPHICEPS Buckton

Elaphiceps Buckton, Mon. Memb. 217 (1903).

Characters : This is one of the most remarkable and bizarre of all of the membracid genera because of the extreme specialization shown in the multibranched anterior pronotal process. Head subquadrate, about twice as broad as high, roughly sculptured; base highly arcuate, strongly sinuate and feebly bituberculate; eyes large, ovate and protruding; ocelli large, prominent, a little farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate and extending slightly forward; clypeus very large, ovate, extending for more than half its length below inferior margins of genæ, tip rounded. Pronotum extended upward into a conical anterior horn which is branched and rebranched; metopidium convex, sloping, about as high as the breadth of the base; median carina faintly percurrent; humeral angles broad, heavy, triangular and blunt; anterior pronotal horn erect, conical or cylindrical, branched at the top into two strong lateral branches each of which is rebranched, the tips of branches very sharp; posterior process long, slender, tricarinate, arising from near the top of the anterior horn just behind or below the lateral branches and extending backward and downward high above the scutellum, the tip acuminate and reaching beyond the internal angles of the tegmina; scutellum entirely exposed, heavy, subtriangular, longer than broad, base swollen, tip truncate. Tegmina long, narrow, semiopaque; basal and costal areas broadly coriaceous and punctate and usually pubescent; veins heavy; five apical and two discoidal cells; tips rounded; apical limbus broad. Legs long, slender and simple; hind tarsi longest.

Type *cervus* Buckton.

Geographical distribution : Only two species of this genus have been described, one from the Orient and one from the Dutch East Indies.

1. *cervus* Buckton, Mon. Memb. 217 (1903). — **Pl. 12, fig. 192.**	China, Hainan Island, Formosa.
2. *javanensis* Funkhouser, Tijd. Ent. LXXX : 121 (1937).	Java.

GENERA OF THE TRIBE LEPTOCENTRINI DISTANT

I. *Base of posterior process distant from scutellum*	
A. *Base of posterior process not angulate*	
1. *Apical veins of tegmina straight*	
a. *Posterior process not lobed below*	
b. *Scutellum as broad as long; apex notched*	
c. *Disc of pronotum elevated*	
d. *Posterior process long and curved*	LEPTOCENTRUS Stål.
dd. *Posterior process short and straight*	NILAUTAMA Distant.
cc. *Disc of pronotum not elevated*	
d. *Suprahumerals directed forward*	ARIMANES Distant.
dd. *Suprahumerals directed outward and upward*	CONVECTOR Distant.
bb. *Scutellum much longer than broad; apex acute*	TELINGANA Distant.
aa. *Posterior process lobed below*	ACANTHOPHYES Stål.
2. *Apical veins of tegmina strongly curved*	
a. *Suprahumerals porrect*	BATHOUTHA Distant.
aa. *Suprahumerals horizontal or oblique*	
b. *Posterior process sinuate; apical half impinging on tegmina* . . .	INDICOPLEUSTES Distant.
bb. *Posterior process straight from basal curve, not touching tegmina* .	PARAPOGON Distant.
B. *Base of posterior process angulate*	
1. *Posterior process compressed and curved behind angle*	XIPHOPOEUS Stål.
2. *Posterior process straight and acuminate behind angle*	MAARBARUS Distant.
II. *Base of posterior process touching or very near scutellum*	
A. *Posterior process slightly but distinctly separated from scutellum*	
1. *Suprahumerals horizontal or nearly so*	
a. *Apical veins of tegmina straight*	
b. *Posterior process compressed and laterally globose*	ASPASIANA Distant.
bb. *Posterior process narrow and undulate*	TSHAKA Distant.
aa. *Apical veins of tegmina strongly curved*	POLONIUS Distant.
2. *Suprahumerals porrect or strongly oblique*	
a. *Pronotum gibbous; posterior process strongly sinuate*	
b. *Front of pronotum crescentiform*	DACARATHA Distant.
bb. *Front of pronotum not crescentiform*	IMPORCITOR Distant.
aa. *Pronotum not gibbous; posterior process only slightly undulate* . . .	OTINOTUS Buckton.

B. *Posterior process impinging on scutellum, usually almost entirely covering it*
1. *Suprahumerals inclined forward*
a. *Suprahumerals oblique*
b. *Posterior process at least as long as tegmina*
c. *Suprahumerals compressed; tegmina with three discoidal cells.* EUFRENCHIA Goding.
cc. *Suprahumerals triquerous; tegmina with two discoidal cells* . . CEBES Distant.
bb. *Posterior process much shorter than tegmina* . . . . LUBRA Goding.
aa. *Suprahumerals porrect*. . . . . SARANTUS Stål.
2. *Suprahumerals not inclined forward*
a. *Posterior process as long or longer than tegmina*
b. *Pronotum strongly rugose*. . . . . GODINGELLA Distant.
bb. *Pronotum not rugose*
c. *Corium with five apical cells* . . . . OTINOTOIDES Distant.
cc. *Corium with three apical cells*. . . . . GONDOPHARNES Distant.
aa *Posterior process shorter than tegmina*
b. *Suprahumerals erect or suberect* . . . . CERAON Buckton.
bb. *Suprahumerals horizontal or oblique*
c. *Suprahumerals horizontal*
d. *Pronotum gibbous before base of posterior process* . . . . EMPHUSIS Buckton.
dd. *Pronotum not gibbous before base of posterior process*
e. *Median carina elevated in spine or angle* . . . . . ACANTHUCUS Stål.
ee. *Median carina straight* . . . . SERTORIUS Stål.
cc. *Suprahnmerals oblique*
d. *Apical veins of tegmina straight*
e. *Dorsum straight, not gibbous*
f. *Suprahumerals strong and robust*
g. *Apical veins of tegmina normal*
h. *Apical cells of corium short and broad* . . . CENTRUCHUS Stål.
hh. *Apical cells of corium elongate*. . . . . . EUFAIRMAIRIA Distant.
gg *Apical veins of tegmina irregular, reticulate*. . . SEXTIUS Stål.
ff. *Suprahumerals very slender* . . . . PERIAMAN Distant.
ee. *Dorsum gibbous*. . . . . CENTROTYPUS Stål.
dd. *Apical veins of tegmina strongly curved*. . . . . POGON Buckton.

219. GENUS LEPTOCENTRUS STÅL

Leptocentrus Stål, Analect. Hem. 386 (1866).
Rabduchus Buckton, Mon. Memb. 251 (1903).

Characters : Since this genus is the type genus of its tribe, it shows very distinctly, as would be expected, the fundamental characters of that tribe, especially the strong, simple suprahumerals, the slender posterior process extending high above the body, the unarmed mesonotum, the plainly visible scutellum and the four apical cells of the hind wings. From the other genera of the tribe it differs

particularly in having a broad, notched scutellum, a long, decurved posterior process and straight simple apical veins in the tegmina. More detailed generic characters may be noted as follows : Head subquadrate, twice as broad as high; base regularly arcuate; eyes large and globular; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus long and usually narrow, extending for more than half its length below inferior margins of genæ, tip rounded or truncate. Pronotum convex and bearing strong suprahumerals and a long posterior process which extends backward high above the scutellum; metopidium vertical, usually higher than broad; median carina strongly percurrent; humeral angles large, triangular and blunt; suprahumeral horns long and strong, variable in size and structure but always simple and sharp, usually longer than the distance between their bases and extending outward and upward with a tendency to curve backward; posterior process long, arising from high above the scutellum and usually extending backward and downward, reaching well beyond the internal angles of the tegmina and often as far as their tips; scutellum entirely exposed, broader than long, base usually swollen and often tomentose, tip broadly notched. Tegmina long, narrow and hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; apical limbus well developed. Legs simple; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *altifrons* Walker.

Geographical distribution : This is one of the most widely distributed of all of the Old World genera and is found over wide areas in Asia, Africa and Oceanica.

1. *abdullah* Distant, Rhynch. Notes 290 (1916).	Malaya, Siam.
2. *alba* Funkhouser, Bornean Memb. 470 (1929).	Borneo.
3 *albescens* Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 427 (1935).	Africa, Sierra Leone.
4. *albolineatus* Funkhouser, Ling. Sci. Journ. XVI : 2. 238 (1937).	China, Hainan Island.
5. *albonotata* Distant. Rhynch. Notes 289 (1916).	India, Nilgiris, Hillgrove.
6. *altifrons* Walker, List Hom. B. M. 608. 21 (1851). *atratus* Walker, List Hom. B. M. 624. 60 (1851). *bos* Signoret, Thoms. Arch. Ent. 336. 640 (1858). *gnomon* Buckton, Mon. Memb. 251 (1903).	Africa, Congo, Sierra Leone, West Africa, Calabar, Kameroons, Dutch East Africa, Amani, Sigital.
7. *antilope* Stål, Freg Eug. Res. Ins. 284. 191 (1859).	Philippines.
8. *arcuatus* Funkhouser, Phil. Journ. Sci. XXXIII : 113 (1927).	Philippines, Palawan, Hawaii.
9. *arebiensis* Goding, Memb. Africa 224 (1932).	Africa, Dungu.
10. *aureomaculatus* Distant, Rhynch. Notes 315 (1916).	Africa, Uganda, Kafu, Kampala.
11. *australis* Distant, Rhynch. Notes 24 (1916).	Africa, Natal, Malvern.
12. *bajulans* Distant, Faun. Brit. Ind. App. 155. 3349 (1916).	India, Bengal, Calcutta, Travancore, Cochin State, Burma, Siam, Malaya.
13. *bolivari* Pelaez, Memb. Fernando Po 58 (1935).	Africa, Fernando Po.
14. *brunneus* Funkhouser, Journ. N. Y. Ent. Soc. XLII : 4. 428 (1935).	Africa, Nairobi.
15. *confusus* Distant, Rhynch. Notes 151 (1916).	Africa, Kameroons, Kenya, Aberdare.
16. *flexicorne* Walker, Ins. Saund. 78 (1858).	India, North Hindostan.

17. *formosanus* Kato, Trans. Nat. Hist. Soc. Form. XVIII : 32 (1928).	Formosa.
18. *gracilis* Funkhouser, Rec. Aus. Mus. XV : 5. 307 (1927).	New South Wales.
19. *grossus* Distant, Rhynch. Notes 315 (1916).	Africa, Uganda, Entebke, Buamba, Semliki.
20. *impunctus* Buckton, Trans. Linn. Soc. Zool. IX : 334 (1905).	Burma, Padaukbin.
21. *insignis* Distant, Faun. Brit. Ind. 32. 2143 (1907).	Borneo, Nicobar Island, Nankauri.
22. *jacobsoni* Funkhouser, Faun. Sumat. 12 (1927).	Sumatra.
23. *lama* Signoret, Thoms. Arch. Ent. II : 337. 642 (1858).	Africa, Calabar, Angola, Fernando Po.
24. *leucaspis* Walker, List Hom. B. M. Suppl. 158 (1858).	India, Ceylon, Philippines, Batbatan Island, Borneo, Malaya, Singapore, Punjab, Kambera.
25. *limbipennis* Jacobi, Kil. Exp. XII : 120 (1910).	Africa, Ruwenzori.
26. *longispinus* Distant, Faun. Brit. Ind. 31. 2141 (1907).	Burma, Singapore, Borneo, Penang, Portuguese India, Mormugao, Sumatra.
27. *luteinervis* Funkhouser, Ann. Ent. Soc. Amer. XXIX : 2. 245 (1936).	India, Bengal.
28. *manilaënsis* Funkhouser, Phil. Journ. Sci. XXIII : 112 (1927).	Philippines, Manila.
29. *mephistopheles* Buckton, Mon. Memb. 235 (1903).	India, Sikhim.
30. *obliquus* Walker, Ins. Saund. 79 (1858).	India, Hindostan.
31. *obortus* Distant, Faun. Brit. Ind. App. 154. 3347 (1916).	India, Burma, Malaya, Singapore, Borneo, Assam, Garo, Tura, Barkuda Island, Sumatra.
32. *orientalis* Schumacher, Sant. Form. 116 (1915).	Formosa.
33. *peracatus* Distant, Rhynch. Notes 151 (1916).	Africa, Somaliland.
34. *pieltaini* Pelaez, Memb. Fernando Po 61 (1935).	Africa, Kameroons.
35. *pilosus* Funkhouser, Revue Suisse de Zool. 191 (1936).	Flores, Soembawa.
36. *pubescens* Funkhouser, Tijd. Ent. LXXX : 122 (1937).	Java.
37. *purpureus* Funkhouser, Bornean Memb. 471 (1929).	Borneo.
38. *reponens* Walker, List Hom. B. M. 604. 14 (1851). — **Pl. 12, fig. 193.**	India, Bengal, Myitta, Sumatra, Ceylon, Philippines, Luzon, Los Banos, Laguna, Panay, Sipora.
39. *rufipennis* Buckton, Trans. Linn. Soc. Zool. IX : 334 (1905).	Africa, Kameroons, Fernando Po.
40. *rufospinus* Funkhouser, Faun. Sumat. 13 (1927).	Sumatra.
41. *scutellatus* Distant, Faun. Brit. Ind. App. 155. 3348 (1916).	India, South India, Kodaikanal.
42. *subflavus* Noualhier and Martin, Mission Pav. III : 167 (1904).	Siam.

43. *substitutus* Walker, List Hom. B. M. 605. 16 (1851). — India, Bengal, Calcutta, Bombay, Ceylon, Colombo. South India, Mysore.

44. *taurus* Fabricius, Syst. Ent. 676. 9 (1775). — India, Assam, Calcutta, East Indies, Borneo, Ceylon, Timor, Bengal, Malaya, Burma, Philippines.
rupricapra Fabricius, Syst. Ent. Suppl. 514 (1798).
tricornis Dohrn, Cat. Hem. 82 (1859).
gazella Buckton, Mon. Memb. 235 (1903).

45. *tenuicornis* Funkhouser, Faun. Sumat. 11 (1927). — Sumatra.

46. *terminalis* Walker, List Hom. B. M. 604. 13 (1851). — China, Hong Kong, Hainan Island.

47. *thelwalli* Distant, Rhynch. Notes 24 (1916). — Africa, Nyassaland.

48. *ugandensis* Distant, Rhynch. Notes 151 (1916). — Africa, Uganda, Entebbe, Semliki, Budongo, Unyoro, Malbira, Toro.

49. *ustus* Buckton, Mon. Memb. 236 (1903). — Ceylon, Madras.

50. *vicarius* Walker, List Hom. B. M. 605. 15 (1851). — Java, Sumatra.

220. Genus NILAUTAMA Distant

Nilautama Distant, Fauna Brit. Ind. 32 (1907).

Characters : Closely related to the preceding genus but with the posterior process short and straight, in some cases not extending as far backward as the end of the scutellum. Head subquadrate, broader than high; base regularly arcuate; eyes large and globular; ocelli prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ straight and sloping; clypeus subovate, extending for three-fourths its length below inferior margins of genæ, tip rounded. Pronotum convex, bearing a pair of strong suprahumerals and a short, straight posterior process; metopidium convex, vertical, about as broad as high; median carina weakly percurrent; humeral angles large, triangular and pointed; suprahumeral horns long, heavy, triquerous, much longer than the distance between their bases, extending upward and outward and usually curving backward, tips sharp; posterior process short, straight, arising from high up on the pronotum, extending backward over the body but not reaching the internal angles of the tegmina and sometimes not as long as the scutellum; scutellum entirely exposed, as broad as long, base swollen and usually tomentose, tip broadly notched. Tegmina long, narrow, hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tips rounded; apical limbus well developed. Hind wings with four apical cells. Legs simple; hind tarsi longest.

Type *typica* Distant.

Geographical distribution : An Indian and East Indian genus with four described species.

1. *cicadiformis* Walker, Journ. Linn. Soc. Lond. I : 164. 121 (1857). — Borneo, Sarawak.
2. *minutispina* Funkhouser, Malayan Memb. 3. 7 (1918). — **Pl. 12, fig. 194.** — Penang Island, Malaya, Kedah, Kangean Island.
3. *tricornis* Melichar, Notes Mus. Leid 114 (1914). — Java.
4. *typica* Distant, Faun. Brit. Ind. 22. 2144 (1907). — India, Tenasserim, Myitta.

221. Genus ARIMANES Distant

Arimanes Distant, Rhynch. Notes 290 (1916).

Characters : This genus seems to be closely related to both *Ceraon* and *Lubra* but differs from both in the low pronotum, the more elevated posterior process and in the peculiar structure of the suprahumerals which are slender, subporrect and tricarinate with the tips broad, truncate and sulcate between the ridges. Head subquadrate, much broader than high; base regularly arcuate; eyes globular; ocelli large, prominent, nearer to each other than to the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping, sinuate and slightly flanged; clypeus feebly trilobed, extending for one-third its length below inferior margins of genæ. Pronotum low and bearing long suprahumerals and a long, slender posterior process; metopidium vertical, broader than high; median carina percurrent; humeral angles large, triangular and blunt; suprahumeral horns slender, much longer than the distance between their bases, strongly triquerate, extending upward, slightly forward and very little outward, tips broad and truncate and bearing strong ridges with depressions between the ridges; posterior process long, slender, tricarinate, slightly elevated above the body, tip sharp and reaching the tips of the tegmina; scutellum broadly exposed on each side. Tegmina long, narrow, semiopaque; basal and costal areas coriaceous and punctate; five apical and two discoidal cells; apical limbus narrow. Legs simple; hind tarsi longest.

Type *doryensis* Distant.

Geographical distribution : This genus is known only from the type species from New Guinea.

1. *doryensis* Distant, Rhynch. Notes 290 (1916). — **Pl. 12, fig. 195.** New Guinea, Dory.

222. Genus CONVECTOR Distant

Convector Distant, Faun. Brit. Ind. App. 153 (1916).

Characters : The type species of this genus bears a strong resemblance to the forms of *Telingana* but the posterior process is lower and the scutellum is broader than long. Head subquadrate, broader than high; base regularly arcuate; eyes globular; ocelli large, conspicuous, equidistant from each other and from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ straight; clypeus extending for two-thirds its length below inferior margins of genæ. Pronotum convex with strong suprahumerals and a long straight posterior process; metopidium vertical, about as broad as high; median carina percurrent; humeral angles broad and blunt; suprahumeral horns strong, triquerate, as long as the distance between their bases, extending outward and upward, tip sharp; posterior process slender, tricarinate, arising from low on the pronotum but above the scutellum, nearly straight, tip acuminate and reaching well beyond the internal angles of the tegmina; scutellum entirely exposed, broader than long, tip broadly notched. Tegmina hyaline; base narrowly coriaceous and punctate; five apical and two discoidal cells; tip pointed, apical limbus well developed. Legs simple; hind tarsi longest.

Type *cavendus* Distant.

Geographical distribution : This genus is known only from the type species.

1. *cavendus* Distant, Faun. Brit Ind. App. 153. 3346 (1916). — **Pl. 12, fig. 196.** India, Nilgiri Hills, Punjab.

223. Genus TELINGANA Distant

Telingana Distant, Faun. Brit. Ind. 17 (1907).

Characters : A distinct and well known genus characterized particularly by the long, tricarinate, decurved posterior process which arises low on the pronotum but does not touch the scutellum and by the long narrow scutellum. Head subquadrate, roughly sculptured, about twice as broad as high; base strongly arcuate and sinuate; eyes large, globular and protruding; ocelli very large, conspicuous, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus narrow, extending for more than half its length below inferior margins of genæ, tip pointed. Pronotum strongly convex, bearing strong suprahumerals and long, decurved posterior process; metopidium vertical, about as broad as high; median carina strongly percurrent; humeral angles very large, heavy and blunt; suprahumeral horns large, triquerate, longer than the distance between their bases, extending outward and upward, tips sharp; posterior process long, slender, tricarinate and decurved, arising from low on the pronotum but not touching the scutellum, apical third usually impinging on the tegmina, tip acuminate and extending well beyond the internal angles of the tegmina but not reaching their tips; scutellum entirely exposed, much longer than broad, tip notched. Tegmina hyaline or mottled; base broadly coriaceous and punctate; veins heavy; five apical and two discoidal cells; tips rounded; apical limbus very narrow. Legs long, slender, simple; tibiæ finely spined; hind tarsi longest.

Type *curvispina* Stål.

Geographical distribution : This is primarily an Indian genus but it has been reported also from Oriental and Oceanic regions.

1. *balteata* Distant, Faun. Brit. Ind. App. 151. 3342 (1916). — **Pl. 12, fig. 197.** — India, Kodaikanal, Teppakulam.
2. *campbelli* Distant, Faun. Brit. Ind. App. 150. 3341 (1916). — South India, Kodaikanal.
3. *canescens* Buckton, Mon. Memb. 234 (1903). — India, Sikhim, Mungphu, Tenasserim, Myitta, Nicobar Island.
4. *capistrata* Distant, Faun. Brit. Ind. 19. 2125 (1907). — India, Assam, Margherita, Burma, Ruby Mines.
5. *cognata* Distant, Faun. Brit. Ind. App. 149. 3339 (1916). — India, Nilgiri Hills.
6. *consobrina* Distant, Faun. Brit. Ind. App. 152. 3344 (1916). — South India, Kodaikanal.
7. *curvispina* Stål, Bid. Memb. Kan. 284. 3 (1869). — India, Calcutta, Kodaikanal, Ceylon, Maskeliya.
   decipiens (nom. nud.) Motschulsky, Bull. Soc. Nat. Mosc. XXXVI : 96 (1863).
   imitator Buckton, Mon. Memb. 234 (1903).
8. *depressa* Funkhouser, Treubia XV : 1. 122 (1935). — Java.
9. *flavipes* Kirby, Journ. Linn. Soc. Zool. XXIV : 165 (1891). — Ceylon, India, Assam, Borneo.
10. *formosanus* Matsumura, Cic. Jap. II : 15. 1 (1912). — Formosa.
11. *imitator* Kirby, Journ. Linn. Soc. Zool. XXIV : 167 (1891). — India, Teppakulam, Ceylon, Pundaluoya.
12. *ornanda* Distant, Faun. Brit. Ind. App. 150. 3340 (1916). — South India, Kodaikanal.
13. *pallipes* Stål, Bid. Memb. Kan. 284. 4 (1869). — India.

14. *paria* Fairmaire, Rev. Memb. 513. 13 (1846). — India, North Bengal, South India, Kodaikanal.

15. *recurvata* Distant, Rhynch. Notes 288 (1916). — Borneo, Sarawak, Sumatra.

16. *scutellata* China, Ann. Mag. Nat. Hist. XVI : 480 (1925). — Asia, Yunnan.

17. *travancorensis* Distant, Faun. Brit. Ind. App. 151. 3343 (1916). — India, Travancore, W. Ghats.

18. *varipes* Walker, Journ. Linn. Soc. Lond. I : 164. 119 (1857). — Borneo, Sarawak, Sumatra.

224. Genus ACANTHOPHYES Stål

Acanthophyes Stål, Hem. Afr. IV : 89 (1866).

Characters : A small and little known genus of small insects characterized by having an inferior lobe on the posterior process. Head subovate, broader than high; base highly arcuate and feebly sinuate; eyes small, somewhat flattened laterally; ocelli small, inconspicuous, somewhat nearer to each other than to the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ sloping, rounded and slightly flanged; clypeus long, narrow, extending for half its length below inferior margins of genæ, tip rounded. Pronotum strongly convex with stout suprahumerals and a robust posterior process; metopidium vertical, subquadrate, about as broad as high; median carina percurrent; humeral angles strong, triangular and blunt; suprahumeral horns strong, triquerate, about as long as the distance between their bases, extending outward and upward, tips sharp and somewhat flattened dorso-ventrally; posterior process heavy, sinuate, tricarinate, arising from low on the pronotum but not touching the scutellum, bearing an inferior median lobe which varies in size but which usually touches the tegmina, tip acute and extending almost to the tips of the tegmina on which it impinges; scutellum entirely exposed, subtriangular, longer than broad, tip notched. Tegmina subhyaline; base coriaceous and punctate; veins not conspicuous; five apical and two discoidal cells; tip rounded; apical limbus broad, especially on the anal margin. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *albipennis* Stål.

Geographical distribution : This is an African and Indian genus with one aberrant species in southern Europe.

1. *albipennis* Stål, Hem. Afr. IV : 89. 1 (1866). — Africa, Caffraria.

2. *capra* Fabricius, Ent. Syst. Suppl. 514. 234 (1798). — India, Tranquebar.

3. *chloroticus* Fairmaire, Ann. Soc. Ent. France II : 9. 86 (1851). — Africa, Caffraria.

4. *walkeri* Funkhouser, Cat. Memb. 338 (1927). — **Pl. 12, fig. 198.** — North Africa, Morocco, Spain, Portugal.
   chloroticus (preoccupied) Walker, Ins. Saund. 82 (1858).

225. Genus BATHOUTHA Distant

Bathoutha Distant, Faun. Brit. Ind. 23 (1907).

Characters : The type of this genus, which is the only species in the genus, is a unique insect showing very remarkable formation in the suprahumerals, which project almost directly forward, in the posterior process which is bent in a bow over the body, and in the strongly curved veins of the tegmina. Head subquadrate, deflexed, twice as broad as high; base regularly arcuate; eyes large, globular and

protruding; ocelli large, prominent, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus long and narrow, extending for three-fourths its length below inferior margins of genæ, tip rounded. Pronotum conical, nearly flat above, not convex, and bearing porrect suprahumerals and an arched posterior process; metopidium sloping forward, much higher than broad; median carina strongly percurrent; humeral angles small, triangular and pointed; suprahumeral horns long, slender, close together, extending almost directly forward, very little upward and hardly at all outward, tips dilated and bearing transverse points; posterior process long, slender, curved, arising from low on the pronotum but not touching the scutellum, arched over the abdomen, tip sharp and extending just beyond the internal angles of the tegmina; scutellum entirely exposed, longer than broad, finely longitudinally carinate. Tegmina long, narrow, subhyaline; basal and costal areas coriaceous and punctate; five apical cells and one discoidal cell; veins of apical area strongly curved; tips pointed; apical limbus very narrow. Legs simple; femora cylindrical, tibiæ slender and finely spined; all tarsi about equal in length.

Type *indicans* Walker.

Geographical distribution : This genus is known only from the type from Ceylon.

1. *indicans* Walker, List Hom. B. M. Suppl. 128 (1858). — **Pl. 12, fig. 199.** Ceylon, Yatiyantota.

226. Genus INDICOPLEUSTES Distant

Indicopleustes Distant, Faun. Brit. Ind. 25 (1907).

Characters : Small insects, closely related to those of the preceding genus and showing similar curved apical veins in the tegmina but differing in the suprahumerals which are short and extend outward and upward, and in the sinuate posterior process which is first arched over the scutellum and then impinges on the tegmina for its distal half. Head subovate, twice as broad as high; base arcuate and strongly sinuate; eyes globular; ocelli large, prominent, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ horizontal and rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, bearing short suprahumerals and a sinuate posterior process; metopidium convex, vertical, a little broader than high; median carina strongly percurrent; humeral angles large, triangular and pointed; suprahumeral horns stout, as long as the distance between their bases, extending outward and upward, tips sharp and curved backward; posterior process sinuate, arising from low on the pronotum but not touching the scutellum, arching over the scutellum and then curving downard and impinging on the tegmina throughout its distal half, tip sharp and reaching just beyond the internal angles of the tegmina; scutellum entirely exposed, about as broad as long. Tegmina broad, semiopaque; basal and costal areas coriaceous and punctate; five apical and two discoidal cells; tips rounded; apical limbus very narrow. Legs simple; all tarsi about equal in length.

Type *albomaculatus* Distant.

Geographical distribution : This is an Asiatic genus represented by species in Ceylon, Java and Japan.

1. *albomaculatus* Distant, Faun. Brit. Ind. 25. 2133 (1907). — **Pl. 12, fig. 200.** Ceylon, Peradeniya.

2. *apicatus* Melichar, Notes Mus. Leid. 113 (1914). Java.
3. *curvatus* Melichar, Hom. Ceylon 112. 7 (1903). Ceylon, Kandy, Peradeniya.
4. *fuscomaculatus* Kato, Ill. Ins. Jap. 41 : 7 (1933). Japan.

227. Genus PARAPOGON Distant

Parapogon Distant, Faun. Brit. Ind. 22 (1907).

Characters : This genus is most nearly related to *Telingana* from which it differs chiefly in having strongly curved veins in the apical area of the tegmina. The two known species of the genus are both small, dark inconspicuous insects. Head subquadrate, twice as broad as high; base arcuate and weakly sinuate; ocelli large, prominent, farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ horizontal and rounded; clypeus broad, extending for two-thirds its length below inferior margins of genæ, tip rounded. Pronotum convex with strong suprahumerals and a straight posterior process elevated well above the scutellum; metopidium vertical, convex, broader than high; median carina percurrent; humeral angles large, triangular and blunt; suprahumeral horns stout, simple, sharp, triquerate, as long as the distance between their bases, extending outward and upward; posterior process simple, tricarinate, arising from low on the pronotum but not touching scutellum, slightly curved above the scutellum and then straight above the abdomen, not impinging on the tegmina, tip sharp and extending beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, longer than broad. Tegmina semiopaque or subhyaline; basal and costal areas coriaceous and punctate; five apical and two discoidal cells; veins of apical area strongly curved; tip pointed; apical limbus very narrow. Legs simple; all tarsi about equal in length.

Type *kandyiana* Distant.

Geographical distribution : This genus is known only from Ceylon. Two species have been described.

1. *insignis* Distant, Faun. Brit. Ind. App. 153 (1916). — **Pl. 12, fig. 201.** Ceylon, Nuwara Eliya.
2. *kandyiana* Distant, Faun. Brit. Ind. 22. 2130 (1907). Ceylon, Kandy.

228. Genus XIPHOPŒUS Stål

Xiphopœus Stål, Hem. Afr. IV : 91 (1866).
Kleidos Buckton, Mon. Memb. 214 (1903).
Euxiphopœus Goding, Journ. N. Y. Ent. Soc. XXXVIII : 91 (1930).

Characters : This genus contains a group of rather strange looking insects characterized particularly by the angulate, compressed and highly arched posterior process, rough, heavy suprahumerals, and long, pointed, opaque tegmina. Head subtriangular, about as long as broad; base highly arcuate and weakly sinuate; eyes ovate; ocelli large but inconspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ rounded and extended far downward; clypeus broad, extending for one-third its length below inferior margins of genæ, tip rounded. Pronotum convex, roughly sculptured, bearing heavy, rough suprahumerals and a strong, arched, laterally flattened posterior process; metopidium vertical, about as broad as high;

median carina strongly percurrent; humeral angles large and blunt; posterior process heavy, compressed laterally, arising high above the scutellum, slightly angulate at the base, then highly curved over the scutellum, then bent downward to touch the tegmina, tip suddenly acute and reaching just beyond the internal angles of the tegmina; scutellum entirely exposed, triangular, about as broad as long, base slightly swollen, tip broadly notched. Tegmina long, slender and opaque; base narrowly coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip pointed; apical limbus very broad. Legs heavy; femora cylindrical; tibiæ triquerate and roughly spined; all tarsi about equal in length.

Type *phantasma* Signoret.

Geographical distribution : This is definitely an African genus but one species has been described from Ceylon.

1. *erectus* Distant, Rhynch. Notes 152 (1916). — **Pl. 12, fig. 202.**	Africa, Uganda, Kafu River, Hoima.
2. *geniculatus* Stål, Hem. Afr. IV : 92. 3 (1866).	Africa, Sierra Leone.
3. *gestroi* Schmidt, Zool. Anz. XXXVIII : 234 (1911).	Africa.
4, *hirculus* Jacobi, Kil. Exp. XII : 7. 121 (1910).	Africa, Kilamandjaro.
5. *horridulus* Walker, List Hom. B. M. 605. 17 (1851).	Africa, Natal.
6. *palmatus* Buckton, Trans. Linn. Soc. Zool. IX : 333 (1905).	Zanzibar.
7. *phantasma* Signoret, Thoms. Arch. Ent. 338. 664 (1858).	Africa, Calabar.
8. *validicornis* Stål, Ofv. Kong. Akad. Forh. 95. 1 (1855).	Africa, Caffraria.
9. *vomeris* Buckton, Mon. Memb. 214 (1903).	Ceylon.

229. Genus MAARBARUS Distant

Maarbarus Distant, Faun. Brit. Ind. 16 (1907).

Characters : We have not seen a representative of this genus but from Distant's description and figure it apparently bears a strong superficial resemblance to *Anchon* but differs particularly in the venation of the hind wing which in *Maarbarus* shows four apical cells. We are reproducing Distant's figure as our illustration of the genus and are summarizing his description to indicate the generic characters as follows : Head subquadrate, wider than high; base arcuate and strongly sinuate; eyes large and globular; ocelli large, prominent, nearer to each other than to the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus broad, extending for two-thirds its length below inferior margins of genæ, tip rounded. Pronotum convex, bearing a pair of slender suprahumerals and a strongly angulate posterior process; metopidium vertical, broader than high; median carina strongly percurrent; humeral angles large, triangular and sharp; suprahumeral horns slender, much longer than the distance between their bases, extending outward and upward with the tips curved backward; posterior process arising from near the base of the pronotum but not touching scutellum, strongly angulate at the base and then extending obliquely downward but not touching tegmina, tip acuminate and extending beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, longer than broad. Tegmina hyaline; basal and costal areas broadly coriaceous and punctate; four apical and two discoidal cells; tip rounded; apical limbus narrow. Legs simple and slender; hind tarsi longest.

Type *bubalus* Kirby.

Geographical distribution : This is an Indian genus with two species, one from India and one from Ceylon.

1. *bubalus* Kirby, Proc. Linn. Soc. Zool. XXIV : 167 (1891). — **Pl. 12, fig. 203.** Ceylon, Pundaluoya, Maskeliya.

2. *cinctus* Buckton, Mon. Memb. 236 (1903). India, Calcutta.

230. Genus ASPASIANA Distant

Aspasiana Distant, Rhynch. Notes 26 (1916).

Characters : This genus was erected to accommodate a single species which stood in the British Museum collection under Walker's MS name « carbonaria ». The species had not been described and Distant, therefore, described both genus and species. The type specimen is a large, smooth, shining black insect with a superficial resemblance to the forms of the Neotropical genus *Antonæ*. It is characterized particularly by the short, sharp, laterally extended suprahumerals and the flat, laterally globose posterior process. Head slightly deflexed, subquadrate, twice as broad as high; base arcuate and sinuate; eyes ovate; ocelli large, prominent, nearer to each other than to the eyes and situated near the upper margin of the head, far above a line drawn through centers of eyes; inferior margins of genæ sinuate; clypeus strong, extending for about half its length below inferior margins of genæ. Pronotum depressed, moderately convexly gibbous, bearing a pair of short, sharp suprahumerals and a broad, compressed and laterally globose posterior process; metopidium sloping, broader than high; median carina percurrent; humeral angles heavy and triangular; suprahumeral horns sharp, extending almost directly outward and curving backward; posterior process distinctly raised above the scutellum at base, then broadly compressed with the lateral areas globose, then suddenly narrowed, tricarinate and depressed, impinging on the tegmina, tip acute and extending almost to the tips of the tegmina; scutellum largely exposed, triangular, longer than broad. Tegmina subhyaline; basal and costal areas narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip pointed; apical limbus narrow. Legs heavy, femora cylindrical; tibiæ triquerate, sulcate and spined; hind tarsi longest.

Type *carbonaria* Distant.

Geographical distribution : This genus is known only from the type species from New Guinea.

1. *carbonaria* Distant, Rhynch. Notes 27 (1916). — **Pl. 12, fig. 204.** New Guinea.

231. Genus TSHAKA Distant

Tshaka Distant, Ins. Trans. 214 (1908).

Characters : The insects of this genus suggest in general facies those of the genus *Anchon* but the hind wings have four apical cells and the posterior process is quite different in generic structures. Head strongly convex, subquadrate, broader than high; base highly arcuate and feebly sinuate; eyes large, globular and protruding; ocelli small, inconspicuous, a little farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sinuate and extended forward; clypeus broad, extending for more than half its length below inferior margins of genæ, tip rounded. Pronotum convexly gibbous, bearing strong suprahumerals and a sinuate posterior

process; metopidium vertical, about as broad as high; median carina percurrent; humeral angles large, triangular and pointed; suprahumeral horns stout, tricarinate, as long as the distance between their bases, extending outward and upward, tips sharp; posterior process sinuate, tricarinate, arising above the scutellum and extending backward over the body, not touching the tegmina, tip acuminate and extending just beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, a little longer than its breadth at base, tip broadly notched. Tegmina short, broad and hyaline; base coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip roundly pointed; apical limbus broad. Hind wings with four apical cells. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *naturalis* Distant.

Geographical distribution : This is entirely an African genus and has been reported from no other continent.

1. *leptocentraria* Distant, Ins. Trans. 214 (1908). — Africa, Transvaal.
2. *naturalis* Distant, Ins. Trans. 214 (1908). — Africa, Transvaal.
3. *obortus* Distant, Rhynch. Notes 42 (1916). — **Pl. 12, fig. 205.** — Africa, Transvaal, Pretoria, Waterberg, Belgian Congo.
4. *undulatus* Distant, Rhynch. Notes 324 (1916). — Africa, Mashonaland, Salisbury, Barberton.

232. Genus POLONIUS Distant

Polonius Distant, Rhynch. Notes 291 (1916).

Characters : The type species of this genus, which is the only species in the genus, might not at first glance be distinguished from a species of *Tricentrus* but the hind trochanters are unarmed, the posterior process is raised slightly above the scutellum and the apical veins of the tegmina are slightly curved. The validity of the genus may be questioned but the characters as shown by the type species which may be generic are as follows : Head subquadrate, broader than high; base arcuate; eyes large and ovate; ocelli small, inconspicuous, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ nearly straight; clypeus broad, extending for half its length below inferior margins of genæ. Pronotum convex, bearing short, strong suprahumerals and a short, straight posterior process; metopidium sloping, wider than high; median carina percurrent; humeral angles large, triangular and blunt; suprahumeral horns stout, sharp, no longer than the distance between their bases, extending outward and upward and curving backward; posterior process short, straight, slightly elevated above the scutellum, strongly tricarinate, tip acuminate and not quite reaching the internal angles of the tegmina; scutellum largely exposed, triangular, about as long as broad. Tegmina long, narrow, subhyaline; basal and costal areas strongly coriaceous and punctate; veins of apical area curved; tip roundly pointed; apical limbus well developed. Legs simple and very strongly pilose; hind tarsi longest.

Type *biseratensis* Distant.

Geographical distribution : This genus is known only from the type species from Malaya.

1. *biseratensis* Distant, Rhynch. Notes 291 (1916). — **Pl. 12, fig. 206.** Siamese Malay States, Biserat.

233. Genus DACARTHA Distant

Dacartha Distant, Rhynch. Notes 319 (1916).

Characters : An African genus which is closely related to the Oriental genus *Emphusis* but with the posterior process higher above the scutellum and with a much less swollen and crescentiform pronotum. Head subquadrate, broader than high; base weakly arcuate and sinuate; eyes large, ovate and protruding; ocelli large, prominent, farther from each other than from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus very broad, extending for half its length below inferior margins of genæ, tip broadly rounded. Pronotum strongly convex, somewhat swollen and crescentiform in front, bearing a pair of short, sharp suprahumerals and a long curving posterior process; metopidium vertical, strongly convex, a little broader than high; median carina faintly percurrent; humeral angles heavy and blunt; suprahumeral horns strong, short, sharp, not as long as the distance between their bases, strongly triquerate, extending almost directly outward with the tips slightly curved backward; posterior process long, strongly tricarinate, decurved, arising from well above the scutellum but bending downward to touch the tegmina, tip acuminate and extending well beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, a little longer than its breadth at base, tip deeply notched. Tegmina long and subhyaline; base narrowly coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip pointed; apical limbus well developed. Legs simple; femora cylindrical; tibiæ triquerous and spined; hind tarsi very much longer than the others.

Type *nyasana* Distant.

Geographical distribution : Both of the representatives of this genus are natives of Africa.

1. *hyalina* Pelaez, Memb. Fernando Po 65 (1935). — **Pl. 12, fig. 207.** Africa, Kameroons.
2. *nyasana* Distant, Rhynch. Notes 319 (1916). Africa, Nyassa, Spanish Guinea.

234. Genus IMPORCITOR Distant

Imporcitor Distant, Faun. Brit. Ind. App. 157 (1916).

Characters : We have not seen either of the species representing this genus but Distant's description and his excellent figure of the type species (which we are reproducing as our illustration of the genus) makes it possible to state the very definite generic characters as follows : Head subquadrate, broader than high; base highly arcuate and feebly sinuate; eyes large, globular and protruding; ocelli small, inconspicuous, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus projecting for half its length below the inferior margins of the genæ, tip pointed. Pronotum convex but not crescentiform, and bearing short, heavy suprahumerals and a very sinuate posterior process; median carina vertical, a little broader than high; humeral angles heavy and blunt; median carina strongly percurrent; suprahumeral horns stout, triquerous, as long as the distance between their bases, extending outward and upward with the tips depressed; posterior process strongly sinuate, arising just above the scutellum and then following the line of the inner margins of the tegmina, tip acute and extending well beyond the internal angles of the tegmina; scutellum well exposed, triangular, about as broad as long. Tegmina

subhyaline; base broadly coriaceous and punctate; five apical and two discoidal cells; tip pointed; apical limbus narrow. Legs heavy; femora cylindrical; tibiæ triquerous, slightly flattened and finely spined; hind tarsi longest.

According to its author, this genus suggests the genus *Ebhul* in so far as the sinuate posterior process is concerned, but of course is at once separated from that genus by the presence of the suprahumeral horns.

Type *typicus* Distant.

Geographical distribution : This genus is represented by two species, one from India and the other from Formosa.

1. *laticornis* Kato, Trans. Nat. Hist. Soc. Formosa XIX : 541 (1929). Formosa.
2. *typicus* Distant, Faun. Brit. Ind. App. 157 (1916). — **Pl. 12, fig. 208.** India, Nilgiri Hills.

235. Genus OTINOTUS Buckton

Otinotus Buckton, Mon. Memb. 233 (1903).
Otionotus (error) Melichar, Wien. Ent. Zeit. XXIV : 295 (1905).

Characters : A large and well known genus distinguished particularly by the sloping and non-gibbous pronotum and the undulate posterior process which lies close to the scutellum. Head subquadrate, wider than high; base arcuate and sinuate; eyes large, globular and protruding: ocelli small, inconspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus very long and narrow, extending for three-fourths its length below inferior margins of genæ, tip rounded. Pronotum slightly convex, not strongly gibbous, bearing a pair of stout suprahumerals and a long, narrow, curved posterior process; metopidium low, vertical, broader than high; median carina percurrent; humeral angles small and blunt; suprahumeral horns stout, tricarinate, sharp, much longer than the distance between their bases, extending outward and upward; posterior process long, slender, tricarinate, weakly sinuate, lying close to the posterior process and impinging on the tegmina; tip acuminate and reaching almost to the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina long, narrow, hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip pointed; apical limbus narrow. Legs simple, stout; femora cylindrical; tibiæ triquerous, somewhat sulcate and weakly spined ; hind tarsi longest.

Type *ammon* Buckton.

Geographical distribution : This genus has a wide distribution over Asia, Africa and Australia.

1. *albomaculatus* Distant, Faun. Brit. Ind. App. 159. 3355 (1916). India, Nilgiri Hills.
2. *albosignatus* Distant, Rhynch. Notes 40 (1916). Queensland.
3. *ammon* Buckton, Mon. Memb. 233 (1903). India, Nilgiri Hills.
4. *arcuatus* Funkhouser, Can. Ent. LI : 10. 222 (1919). South Africa, Pretoria.
5. *badius* Distant, Faun. Brit. Ind. App. 158. 3354 (1916). India, Nilgiri Hills.
6. *belus* Buckton, Mon. Memb. 232 (1903). Unknown.
7. *brevicornis* Distant, Faun. Brit. Ind. App. 160. 3357 (1916). India, Punjab, Lahore, Dehra Dun.

8. *campbelli* Distant, Faun. Brit. Ind. App. 158. 3353 (1916). — India, Nilgiri Hills.

9. *curvidens* Distant, Rhynch. Notes 154 (1916). — Africa, Kameroons, Uganda, Entebbe, Kikindu.

10. *doddi* Distant, Rhynch. Notes 40 (1916). — Queensland.

11. *elongatus* Distant, Faun. Brit. Ind. 41. 2160 (1907). — India, South India, Mysore Trivandrum, Travancore.

12. *griseus* Melichar, Wien. Ent. Zeit. XXIV : 295. 55 (1905). — Dutch East Africa, Amani, Bomole.

13. *invarius* Walker, List Hom. B. M. 621. 55 (1851). — China?

14. *kerenianus* Distant, Ann. Mag. Nat. Hist. XIV : 332 (1914). — Pl. 12, fig. 209. — Burma, Karen Hills.
   pallipes (preoccupied) Distant, Faun. Brit. Ind. 40. 2156 (1907).

15. *midas* Buckton, Mon. Memb. 233 (1903). — Malaya, Perak.

16. *mimicus* Distant, Faun. Brit. Ind. App. 159. 3356 (1916). — India, Nilgiri Hills.

17. *nigrorufus* Distant, Rhynch. Notes 153 (1916). — Africa, Uganda, Masindi, East Mbale, Mpanga, Toro, Mabiri, Chagive, Hoima, Busoga, Entebbe, British East Africa, Mt. Elgon.

18. *oneratus* Walker, Ins. Saund. 78 (1858). — India, Hindostan, Coorg, Raniseram, Calcutta, Bombay, Poona, Cetrapura, Peradeniya, Jaffna, Bangalore, Dehra Dun, Bengal, Rajmahal, Durgapur, Madras, Janjam, Rambha, Orissa, Satpara, Kathiawa, Patan, Somnah, Yenna, Medha, Saran, Siripur.
   lignicola Buckton, Mon. Memb. 224 (1903).

19. *pallescens* Distant, Faun. Brit. Ind. 41. 2159 (1907). — India, Mainpura, Punjab.

20. *pilosus* Funkhouser, Can. Ent. LI : 10. 222 (1919). — Dutch East Africa.

21. *recurvus* Distant, Rhynch. Notes 154 (1916). — Africa, Uganda, Entebbe, Lake Isolt, Lake Wamala.

22. *rufescens* Distant, Faun. Brit. Ind. 40. 2157 (1907). — India, Tenasserim, Myitta.

23. *transversus* Distant, Faun. Brit. Ind. App. 161 (1916). — India, Punjab, Lahore.

236. Genus EUFRENCHIA Goding

Eufrenchia Goding, Mon. Memb. Australia 25 (1903, March 25).
Ibiceps Buckton, Mon. Memb. 239 (1903, Sept. 5).

Characters : By priority of a few months in dates of publication, as indicated above, Goding's name must be accepted for this genus, an oceanic group of insects characterized by having heavy compressed suprahumerals, a long posterior process which lies close to the scutellum and three discoidal cells in the tegmina. Head subquadrate, wider than high, roughly sculptured; base feebly arcuate;

eyes large, ovate and protruding; ocelli small, inconspicuous, about equidistant from each other and from the eyes and situated high up near the base of the head far above a line drawn through centers of eyes; inferior margins of genæ sloping, sinuate, and slightly turned forward; clypeus broad with small lateral lobes, extending for half its length below inferior margins of genæ. Pronotum convex, robust, gibbous, with strong suprahumerals and a long posterior process; metopidium vertical, higher than broad; mediam carina faintly percurrent; humeral angles weak and blunt; suprahumeral horns strong, laterally flattened, much longer than the distance between their bases, extending upward and somewhat forward with the tips bent outward; posterior process long, slender, tricarinate, lying close to the scutellum, impinging on the tegmina, tip decurved, blunt, and reaching beyond the tips of the tegmina; scutellum very narrowly exposed on each side. Tegmina long, narrow and pointed, hyaline; base narrowly coriaceous and punctate; veins strong; five apical and three (sometimes four) discoidal cells; tip sharply pointed; apical limbus narrow. Legs simple; hind tarsi longest.

Type *falcata* Walker.

Geographical distribution : This is an oceanic genus which is most abundant in the Australian region.

1. *ansatus* Buckton, Mon. Memb. 239 (1903). — New Guinea, Mt. Alexander.
2. *bucktoni* (nom. nov.). — **Pl. 12, fig. 210.** — South Australia, Murray Bridge.
   falcatus (preoccupied) Buckton, Mon. Memb. 239 (1903).
3. *falcata* Walker, List Hom. B. M. 622. 57 (1851). — Australia, Van Dieman's Land, South Australia. Adelaide.
   curvicornis Stål, Bid. Memb. Kan. 287. 1 (1869).
4. *laminifer* Buckton, Mon. Memb. 240 (1903). — Australia, Singapore?
5. *leæ* Goding, Mon. Aus. Memb. 26 (1903). — West Australia.
6. *mounseyi* Distant, Rhynch. Notes 150 (1916). — Philippines.
7. *neglecta* Buckton, Mon. Memb. 224 (1903). — South Australia.

237. Genus CEBES Distant

Cebes Distant, Rhynch. Notes 39 (1916).

Characters : Closely related to the preceding genus but the suprahumerals are not flattened and there are only two discoidal cells in the tegmina. Head subquadrate, wider than high; base arcuate and strongly sinuate; eyes large, globular and protruding; ocelli large, conspicuous, equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ sloping and strongly sinuate, edges turned forward; clypeus broad, trilobed, extending for half its length below inferior margins of genæ, tip truncate Pronotum convex, gibbous, bearing strong suprahumerals and a stout posterior process; metopidium vertical, about as broad as high; median carina faintly percurrent; humeral angles heavy, triangular and blunt; suprahumeral horns strong, triquerate, much longer than the distance between their bases, extending outward and upward and slightly forward; posterior process long. heavy, tectiform, triquerate, very close to scutellum and impinging on tegmina, tip sharp, decurved and reaching almost to tips of tegmina; scutellum very narrowly exposed on each side, usually tomentose. Tegmina broad and hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; third apical cell sometimes

subdivided into several small cells by transverse venules; tip sharply pointed; apical limbus narrow. Legs heavy; femora cylindrical; tibiæ broadly triquerate, almost foliaceous; hind tarsi longest.

Type *transiens* Walker.

Geographical distribution : This is a rare Australian genus represented by only three species.

1. *areolatus* Goding, Mon. Aus. Memb. 23 (1903). — Australia, Victoria, Braidwood, Queanbeyan, New South Wales, New Guinea.
2. *godingi* Distant, Rhynch. Notes 39 (1916). — Australia.
   rubridorsa Buckton (cabinet label).
3. *transiens* Walker, List Hom. B. M. 624. 61 (1851). — **Pl. 13, fig. 211.** — South Australia.

238. Genus LUBRA Goding

Lubra Goding, Mon. Aus. Memb. 28 (1903).

Characters : We have not seen either of the two species representing this genus. The descriptions are very meager and the only figures which have been published are two unsatisfactory sketches, one of a tegmen and the other of part of a pronotal process. Consequently, for a generic diagnosis, we are forced to depend on Goding's original description of the genus which is as follows :

> « Head triangular, lateral borders sinuous. Prothorax rising vertically from the base, the dorsum appears to divide into two long anteriorly inclined horns which are enlarged towards the apex rounded on the top (not truncated), the inner angles produced in triangular acuminate spines, the surface reticulated; the posterior process is much shorter than the tegmina and sinuate. Tegmina with two discoidal cells, the second petiolate, furnished with a transverse venule between two ulnar veins, near base. Wings with four apical cells. Legs very slightly flattened. »

Type *spinicornis* Walker.

Geographical distribution : This is an Australian genus with two species as follows :

1. *regalis* Goding, Mon. Aus. Memb. 30 (1903). — Queensland, Brisbane.
2. *spinicornis* Walker, Journ. Ent. I : 316 (1862). — Australia, New South Wales, Tweed River, Clarence River, Queensland, Moreton Bay.

239. Genus SARANTUS Stål

Sarantus Stål, Trans. Ent. Soc. Lond. 592 (1863).

Characters : This genus is closely related to the three preceding genera and belongs to the same natural group but differs in having the two long suprahumerals close together and strongly porrect. Head subquadrate, broader than high; base nearly straight, weakly sinuate; eyes large, globular and protruding; ocelli small, inconspicuous, a little farther from each other than from the eyes and situated somewhat above a line drawn through centers of eyes; inferior margins of genæ sloping, sinuate and flanged; clypeus broad, feebly trilobed, extending for half its length below inferior margins of genæ.

Pronotum convex, bearing a pair of slender suprahumerals and a long, slender posterior process; metopidium vertical, higher than broad; median carina percurrent; humeral angles large, heavy and blunt; suprahumeral horns long, slender, very close together and projecting strongly forward and upward, very little outward, tip blunt or truncate; posterior process long, slender, sinuate, tectiform, tricarinate, lying close to scutellum and impinging on tegmina, tip acuminate and reaching just about to the tips of the tegmina; scutellum very narrowly exposed on each side, usually tomentose. Sides of thorax generally strongly tomentose. Tegmina broad, hyaline; basal and costal areas coriaceous and punctate; veins heavy; five apical and two discoidal cells; inner discoidal cell petiolate, outer truncate at base; tip rounded; apical limbus well developed. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *wallacei* Stål.

Geographical distribution : This genus seems to be limited to the Australian Region.

1. *apicalis* Schmidt, Abzug. Soc. Ent. XL : 4. 18 (1925).	New Guinea.
2. *australensis* Goding, Journ. N. Y. Ent. Soc. XXXIV : 208 (1926).	Queensland, Brisbane.
3. *marginalis* Schmidt, Abzug. Soc. Ent. XL : 4. 16 (1925).	New Guinea.
4. *nobilis* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 374. 1 (1906).	Queensland, Cairns.
5. *similis* Schmidt, Abzug. Soc. Ent. XL : 4. 18 (1925).	New Guinea.
6. *wallacei* Stål, Trans. Ent. Soc. Lond. 592 (1863). — **Pl. 13, fig. 212.**	Queensland.

240. Genus GODINGELLA Distant

Godingella Distant, Rhynch. Notes 31 (1916).

Characters : This genus was erected to accommodate a single species which we have not seen and which has not been recognized in the literature of the family since its original description. Distant did not figure the species but his description is sufficiently full and clear so that its recognition should be a matter of no difficulty and we do not doubt the validity of the genus. We quote Distant's original generic diagnosis as follows :

> « Pronotum very strongly rugose and irregularly carinate, strongly centrally carinate, the lateral processes upwardly and outwardly directed, triquetrous, the margins strongly carinate and the upper surface more or less centrally carinate, the carination of the outer margin is continued along the outer margins of the posterior pronotal process, which is centrally moderately sinuate and reaches or nearly reaches the tegminal apex; ocelli a little nearer to each other than to eyes; face strongly centrally excavate before base of clypeus, eyes large and prominent; tegmina elongate, about three times as long as broad, apical cells elongate.
>
> » Allied to *Sarantus* Stål, from which it is distinguished by the rugosely carinate pronotum and the much more slender and straighter posterior process to same, the narrower tegmina and their different venation. A species insufficiently described by Kirkaldy from Queensland, and which I have not seen, as *Sarantus nobilis* may possibly also belong to *Godingella*, as may also the species described by Goding as *Sertorius giganticus* from South Australia. »

Type *queenslandensis* Distant.

Geographical distribution : The single representative of this genus is from Queensland, as the specific name would indicate.

1. *queenslandensis* Distant, Rhynch. Notes 32 (1916).	Queensland.

241. GENUS OTINOTOIDES DISTANT

Otinotoides Distant, Rhynch. Notes 320 (1916).
Otinoides (error) Distant, Ann. Mag. Nat. Hist. XVII : 321 (1916).

Characters : This is a large and well known genus which was originally founded to accommodate a number of Papuan species which resembled Buckton's genus *Otinotus* but differed principally in the structure of the posterior process. The genus proves, however, to have other very distinct characters and to have a very wide distribution. It is most easily recognized by the strong spreading suprahumerals, the long sinuate posterior process lying close to the scutellum, the smooth pronotum and the five apical cells of the tegmina. Head subtriangular, about as broad as long; base highly arcuate and lightly sinuate; eyes large, ovate and protruding; ocelli large, conspicuous, a little farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ sloping, sinuate, with edges projecting forward; clypeus narrow, projecting for half its length below inferior margins of genæ, tip pointed. Pronotum convex, gibbous, bearing a pair of short, sharp suprahumerals and a long sinuate posterior process; metopidium vertical, broader than high; median carina strongly percurrent; humeral angles large, heavy, triangular and blunt; suprahumeral horns strong, triquerate, as long or longer than the distance between their bases, extending outward and upward; posterior process long, sinuate, tectiform, very close to scutellum and impinging on tegmina, tip acuminate and almost reaching the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, hyaline; basal and costal areas broadly coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip rounded; apical limbus well developed. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *pallipes* Walker.

Geographical distribution : This genus has a very wide distribution over Asia, Africa and Oceanica.

1. *albidus* Walker, Journ. Linn. Soc. Zool. X : 188 (1868). — New Guinea, Mysol.
2. *australis* Distant, Rhynch. Notes 40 (1916). — Queensland.
3. *brevivittus* Walker, Journ. Linn. Soc. Zool. X : 185 (1868). — New Guinea.
4. *brunneus* Funkhouser, Rec. Aus. Mus. XV : 309 (1927). — Solomon Islands, Guadaleanar.
5. *bulbosa* Funkhouser, Treubia XV : 1. 124 (1935). — New Guinea.
6. *dorsata* Funkhouser, Rev. Suisse de Zool. XLIII : 2. 192 (1936). — Bougainville.
7. *elevatus* Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 431 (1935). — Solomon Islands.
8. *intermedius* Distant, Rhynch. Notes 41 (1916). — South Australia, Largo Bay, Queensland, Gayndah, Peak Downs, Kei Islands.
9. *minuticornis* Funkhouser, Journ. N.Y. Ent. Soc. XLIII : 4. 431 (1935). — Solomon Islands.
10. *pallipes* Walker, Journ. Linn. Soc. Zool. X: 188 (1888). — New Guinea, Batchian, Mysol.
    tibialis Walker, Journ. Linn. Soc. Zool. X : 188 (1868).
    ramivitta Walker MS ? (*fide* Distant).
    semiclusus Walker MS ? (*fide* Distant).
11. *pubescens* Funkhouser, Phil. Journ. Sci. XL : 115 (1929). — Amboina.
12. *semilucidus* Walker, Journ. Linn. Soc. Zool. X : 186 (1868). — New Guinea, Waigiou.

13. *serpentarius* Buckton, Trans. Linn. Soc. Zool. IX : 335 (1905). Africa, Kameroons, Tasmania.

14. *solomonensis* Distant, Rhynch. Notes 41 (1916). Solomon Islands.

15. *spicatus* Distant, Rhynch. Notes 42 (1916). — **Pl. 13, fig. 213.** Queensland.

16. *strigatus* Walker, Journ. Linn. Soc. Zool. X : 184 (1868). New Guinea.
curvicornis Buckton, Mon. Memb. 251 (1903).

17. *subflavipes* Walker, Journ. Linn. Soc. Zool. X : 189 (1868). East Indies, New Guinea.

242. GENUS GONDOPHARNES DISTANT

Gondopharnes Distant, Rhynch. Notes 321 (1916).

Characters : Distant erected this genus for the accommodation of Walker's *Centrotus piceus* chiefly because of the fact that this species showed only three apical cells in the tegmina. No other species has ever been added to the genus and the type species has not been figured or further described. We have not seen the insect and therefore are quoting Distant's original description which is as follows :

« Pronotum not prominently raised, the lateral processes moderately robust, their apices more or less recurved and subacute, centrally longitudinally carinate, posterior process broad, laterally compressed, tricarinate, sinuous, at base almost touching scutellum and impinging on the tegmina, its apex longly narrowed and acute, convexly deflected, and reaching the tegminal apex; tegmina with three large apical cells. A genus to be placed near *Otinoides* Dist. ».

From the above short and not entirely satisfactory description we judge that this genus is very close to *Otinotoides* and differs from that genus chiefly in the matter of wing venation.

Type *piceus* Walker.

Geographical distribution : The type species from Papua is the only representative of the genus.

1. *piceus* Walker, Journ. Linn. Soc. Lond. X : 187 (1868). Batchian.

243. GENUS CERAON BUCKTON

Ceraon Buckton, Mon. Memb. 228 (1903).
Daunus (preoccupied) Stål, Analect. Hem. 386 (1866).
Zanophara Kirkaldy, Ent. XXXVII : 279 (1904).

Characters : This genus is characterized particularly by the heavy, rough suprahumerals which are erect or suberect and broadly swollen at the tips and by the posterior process which is shorter than in the other closely related genera. Head triangular, broader than long; base feebly arcuate and sinuate; eyes large, globular and protruding; ocelli large, conspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sloping, sinuate and flaring outward; clypeus broad, trilobed, extending for half its length below inferior margins of genæ. Pronotum convex, gibbous, bearing long, heavy, rough suprahumerals and a short sinuate posterior process; metopidium vertical, about as broad as high; median carina strongly percurrent; humeral angles large, triangular and blunt; suprahumeral horns long, heavy, rough, close together at the base, extending almost directly upward and very little outward, usually multicarinate, tips swollen and generally

truncate; posterior process heavy, tectiform, almost entirely concealing scutellum, impinging on tegmina, tip sharp and not reaching tips of tegmina; scutellum very narrowly exposed on each side. Tegmina long, narrow, subhyaline; basal and costal areas coriaceous and punctate; veins heavy but not prominent; five apical and two discoidal cells; tip rounded; apical limbus broad and much wrinkled. Legs simple; femora cylindrical; tibiæ triquerate and finely spined; hind tarsi longest.

Type *tumescens* Buckton.

Geographical distribution : This is strictly an Australian genus.

1. *albovitta* Kirkaldy, Hon. Exp. Sta. Bull. Ent. III : 90 (1907). — Queensland, Bundaberg.
2. *leda* Kirkaldy, Hon. Exp. Sta. Bull. Ent. III : 89 (1907). — New South Wales, Mittagong.
3. *rubridorsatum* Buckton, Mon. Memb. 230 (1903). — Australia, Adelaide.
4. *succisus* Buckton, Mon. Memb. 226 (1903). — South Australia.
5. *tasmaniæ* Fairmaire, Rev. Memb. 513. 14 (1846). — Tasmania, Australia, Van Dieman's Land, Port Philip, New Holland, Hobart, Gisborne, Victoria, Brisbane, Queensland, New South Wales.
   contractus Walker, List Hom. B. M. 622. 56 (1851).
   truncaticornis Walker, Ins. Saund. 81 (1858).
6. *tumescens* Buckton, Mon. Memb. 228 (1903). — Tasmania.
7. *vitta* Walker, List Hom. B. M. 626. 64 (1851). — **Pl. 13, fig. 214.** — Australia, Tasmania, Camden Haven, Penrith, Sydney, New South Wales, Queanbeyan, Bungendore, South Australia.
   contorta Walker, Ins. Saund. 66 (1858).

244. Genus EMPHUSIS Buckton

Emphusis Buckton, Mon. Memb. 256 (1903).

Characters : This is a genus of large insects which are very conspicuous because of the greatly swollen and crescentiform metopidium. The suprahumerals are usually strong and horizontal, the posterior process heavy and straight and the tegmina more or less vitreous. Head subquadrate, about twice as broad as high; base arcuate and weakly sinuate; eyes large and ovate; ocelli large, conspicuous, farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ slightly sloping and sinuate; clypeus broad, trilobed, extending for two-thirds its length below inferior margins of genæ, tip pointed. Pronotum strongly gibbous, swollen, crescentiform in front and bearing a pair of robust suprahumerals and a heavy posterior process; metopidium strongly convex, swollen, protruding, about as broad as high; median carina usually obsolete; humeral angles small, weak and acute; suprahumeral horns varying in size and structure but usually horizontal, flattened dorso-ventrally, as long or longer than the distance between their bases, tips sharp and sometimes recurved; posterior process heavy, tectiform, almost entirely concealing the scutellum, impinging on tegmina, generally straight, tip sharp and not reaching the tips of the tegmina; scutellum very narrowly exposed on each side. Tegmina broad, subhyaline, vitreous or semiopaque; basal and costal areas coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad. Legs simple and heavy; hind tarsi much the longest.

Type *obesus* Fairmaire.

Geographical distribution : This is an Australasian genus with a considerable oceanic distribution.

1. *agnatus* Distant, Rhynch. Notes 319 (1916).	Siam, Chantaboun.
2. *alticeps* Walker, Journ. Linn. Soc. Zool. X : 183 (1868).	East Indies.
3. *bakeri* Funkhouser, Phil. Memb. 381 (1915).	Philippines, Mindanao, Iligan.
4. *bicornis* Funkhouser, Rec. Aus. Mus. XV : 5. 305 (1927).	British New Guinea.
5. *bulbifer* Funkhouser, Bull. Brook. Ent. Soc. XXII : 106 (1927).	Sumatra.
6. *erigens* Walker, List Hom. B. M. 614. 43 (1851).	Philippines.
7. *globosus* Funkhouser, Phil. Journ. Sci. XVIII : 6. 683 (1921).	Philippines, Mindanao, Dapitan.
8. *malleus* Walker, List Hom. B. M. 613. 41 (1851). — **Pl. 13, fig. 215.**	India, Teppakulam, Castle Rock, N. Kanara, Bombay, South India, Ceylon, Borneo, Java.
9. *obesus* Fairmaire, Rev. Memb. 518. 28 (1846). *malleator* Walker, List Hom. B. M. 612 40 (1851). *tumescens* Buckton, Mon. Memb. 256 (1903).	Java.
10. *occidentalis* Goding, Mon. Aus. Memb. 27 (1903).	West Australia, Swan River.
11. *perarmatus* Distant, Faun. Brit. Ind. App. 156. 3350 (1916).	India, Cochin, Trichur.
12. *rugosis* Funkhouser, Phil. Journ. Sci. XXXIII : 111 (1927).	Philippines, Sibuyan.

245. GENUS ACANTHUCUS STÅL

Acanthucus Stål, Hem. Afr. IV : 87 (1866).
Acanthusus (error) Distant, Rhynch. Notes 28 (1916).

Characters : A very distinct genus characterized particularly by the strong sharp triangular dorsal spine at the base of the posterior process. Head subquadrate, broader than high; base highly arcuate, feebly sinuate and weakly bituberculate; eyes ovate; ocelli large, prominent, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping, strongly sinuate and somewhat flanged; clypeus very broad, trilobed, extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex, bearing a pair of stout suprahumerals, a median dorsal spine and a long, sinuate posterior process; metopidium convex, vertical, broader than high; median carina strongly percurrent; humeral angles large, subconical and blunt; suprahumeral horns strong, triquerate, as long or longer than the distance between their bases, extending outward and upward with the tips often recurved or decurved; dorsum bearing a strong, sharp, triangular spine at the base of the posterior process; posterior process long, tectiform, strongly sinuate, lying close to scutellum and impinging on tegmina, tip acuminate and reaching nearly to the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, hyaline or subhyaline; basal and costal areas broadly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus narrow. Legs simple; hind tarsi longest.

Type *gracilispinus* Stål.

Geographical distribution : The center of distribution of this genus seems to be the Australian Region but one species has been recorded from southern Asia.

1. *bispinus* Stål, Bid. Memb. Kan. 288. 3 (1869). — Australia, Homebush, Tweed River, Sydney, New South Wales, Clermont, Maitland, Swan River, Victoria, Tasmania.
2. *carinatus* Funkhouser, Rec. Aus. Mus. XV : 311 (1927). — South Australia.
3. *conspurcatus* Stål, Bid. Memb. Kan. 288. 2 (1869). — Australia, Tweed River, Blue Mts., New South Wales, Huon River, Tasmania, Victoria.
4. *dromedarius* Kirkalky, Hon. Exp. Sta. Bull. Ent. I : 377. 1 (1906). — Queensland, Cairns.
5. *eurynomus* Kirkaldy, Haw. Exp. Sta. Bull. III : 91. 3 (1907). — Queensland, Bundaberg.
6. *euryone* Kirkaldy, Haw. Exp. Sta. Bull. III : 2 (1907). — New South Wales, Sydney.
7. *festivus* Distant, Rhynch. Notes 28 (1916). — Queensland.
8. *flavidorsus* Goding, Journ. N. Y. Ent. Soc. XXXIV : 244 (1926). — Australia, New South Wales.
9. *gracilispinus* Stål, Bid. Memb. Kan. 287. 1 (1869). — **Pl. 13, fig. 216.** — Australia, Bruni, Tasmania, Victoria, Bunbury, New South Wales, Tweed River, Clarence River.
10. *iasis* Kirkaldy, Haw. Exp. Sta. Bull. III : 90. 1 (1907). — Queensland, Kuranda.
11. *kershawi* Goding, Mon. Aus. Memb. 17 (1903). — Australia, Thornleigh, Blue Mts., New South Wales.
12. *minutispinus* Funkhouser, Rec. Ind. Mus. XXIV : 3. 323 (1922). — India, East Himalayas, Sureil, Darjeeling.
13. *nivalis* Distant, Rhynch. Notes 28 (1916). — Queensland, Brisbane, Kuranda.
14. *obtusus* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 377. 2 (1906). — New South Wales, Sydney.
15. *pyramidatus* Funkhouser, Rec. Ind. Mus. XV : 310 (1927). — Tasmania.
16. *rufiventris* Walker, List Hom. B. M. 616. 46 (1851). — Australia, Queensland, Moreton Bay.
17. *trispinifer* Fairmaire, Rev. Memb. 515. 20 (1846). — Australia, New Holland, Huon River, Hobart, Gloucester, Mt. Wellington, Tasmania, Tweed River, New South Wales, Victoria.

246. Genus SERTORIUS Stål

Sertorius Stål, Analect. Hem. 387 (1866).

Characters : This is a very characteristic Australian genus closely related to the preceding but having no dorsal spine. Head subquadrate, twice as broad as high; base highly arcuate and feebly

sinuate; eyes large, ovate and protruding; ocelli large, conspicuous, a little farther from each other than from the eyes and situated somewhat above a line drawn through centers of eyes; inferior margins of genæ strongly angulate; clypeus broad, distinctly trilobed, extending for more than half its length below inferior margins of genæ, tip rounded and pilose. Pronotum strongly convex and gibbous, bearing a pair of suprahumerals and a heavy, sinuate posterior process; metopidium convex, vertical, higher than broad; median carina faintly percurrent; humeral angles large, triangular and blunt; suprahumeral horns varying greatly in size and structure, ranging from small protuberances as in the type species to large, wide-spreading horns as in *S. giganticus* Goding, but usually robust, subconical, weakly carinate, as long or longer than the distance between their bases, extending outward and upward; posterior process heavy, tectiform, strongly sinuate, lying close to the scutellum and impinging on the tegmina, tip acute, decurved, and reaching almost to the tips of the tegmina; scutellum subtriangular, well exposed on each side, tip notched. Tegmina broad, hyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip pointed; apical limbus well developed. Legs heavy; femora cylindrical; tibiæ triquerate, lightly sulcate and finely spined; hind tarsi longest.

Type *australis* Fairmaire.

Geographical distribution : This genus is limited to the Australian Region and seems to be one of the dominant forms of that part of the world.

1. *acuticornis* Goding, Journ. N. Y. Ent. Soc. XXXIV : 244 (1926). — Australia, Queensland, Kuranda.
2. *affinis* Distant, Rhynch. Notes 25 (1916). — New South Wales, Sydney.
3. *australis* Fairmaire, Rev. Memb. 518. 30 (1846). — **Pl. 13, fig. 217.** — Australia, Tasmania, New South Wales, New Holland, Victoria, South Australia, Williamstown.
   obstans Walker, List Hom. B. M. Suppl. 162 (1858).
   binotatus Walker, Ins. Saund. 81 (1858).
4. *brevicornis* Goding, Mon. Aus. Memb. 21 (1903). — South Australia, West Australia, Mt. Barker.
5. *castaneus* Distant, Rhynch. Notes 25 (1916). — Australia.
6. *curvicaudus* Goding, Mon. Aus. Memb. 24 (1903). — New South Wales, Tweed River.
7. *giganticus* Goding, Mon. Aus. Memb. 20 (1903). — South Australia.
8. *insularis* Distant, Rhynch. Notes 26 (1916). — Australia, New Britain Isl.
9. *luteus* Buckton, Mon. Memb. 244 (1916). — Australia, Adelaide.
10. *tepperi* Goding, Mon. Aus. Memb. 22 (1903). — West Australia, Bunbury.

247. Genus CENTRUCHUS Stål

Centruchus Stål, Hem. Afr. IV : 93 (1866).

Characters : This is a genus of comparatively small insects characterized by oblique suprahumerals, a non-gibbous pronotum and more or less flattened dorsum, a short, straight posterior process and with the veins of the tegmina straight with the apical cells short and broad. Head subquadrate, roughly sculptured, twice as broad as high; base only slightly arcuate but distinctly sinuate; eyes small and globular; ocelli small and inconspicuous but somewhat elevated, about equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins

of genæ rounded and distinctly turned forward; clypeus broad, feebly trilobed, extending for two-thirds its length below inferior margins of genæ, tip truncate. Pronotum low, not gibbous, bearing a pair of oblique suprahumerals and a short, straight posterior process; metopidium sloping, twice as broad as high; median carina faintly percurrent; humeral angles large, triangular and blunt; suprahumeral horns varying greatly in size and structure but always extending outward and upward and usually strong, robust and about as long as the distance between their bases; dorsum more or less flattened; posterior process short, heavy, tectiform, close to scutellum which it almost entirely covers, impinging on tegmina, tip blunt and seldom reaching beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, hyaline; base narrowly coriaceous and punctate; veins strong and straight; five apical and two discoidal cells; apical cells short and broad; tips pointed; apical limbus narrow. Legs simple and slender; tibiæ finely spined; hind tarsi longest.

Type *fuscipennis* Germar.

Geographical distribution : This genus is represented in both Asia and Africa according to the present listing of species but we strongly suspect that the two geographical areas represent groups which are distinct enough to make it probable that the genus should be subdivided. However, we have not seen enough material to warrant splitting the genus at the present time and are listing all of the species under *Centruchus* as follows :

1. *brevicornis* Funkhouser, Ann. Ent. Soc. Amer. XXIX : 2. 247 (1936). **Pl. 13, fig. 218.** India, Kashmir.
2. *capensis* Germar, Rev. Silb. III : 256. 2 (1835). Africa, Cape of Good Hope.
3. *cuneatus* Distant, Faun. Brit. Ind. 56. 2184 (1907). India, Sookna.
4. *decoratus* Distant, Faun. Brit. Ind. 58. 2287 (1907). Burma, Momeit.
5. *fuscipennis* Germar, Rev. Silb. III : 256. 3 (1835). Africa, Cape of Good Hope.
6. *laticornis* Funkhouser, Malayan Memb. 9. 18 (1918). Malaya, Singapore.
7. *mutilus* Distant, Faun. Brit. Ind. App. 168. 3371 (1916). Burma, Maymyo.
8. *nodosus* Buckton, Mon. Memb. 226 (1903). East Africa, Grahamstown.

248. Genus EUFAIRMAIRIA Distant

Eufairmairia Distant, Rhynch. Notes 35 (1916).

Characters : A genus of large, heavy-bodied insects recognized by the robust, oblique suprahumerals, the long decurved posterior process and the long narrow cells in the apical area of the tegmina. Head subquadrate, roughly sculptured, only a little broader than high; base arcuate, lightly sinuate and feebly bituberculate; eyes large, globular and protruding; ocelli large, conspicuous, somewhat elevated, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sloping, strongly sinuate, with the edges distinctly turned outward; clypeus very broad, trilobed with the median lobe much the largest, extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex but not strongly gibbous, bearing a pair of large robust suprahumerals and a long, heavy, decurved posterior process; metopidium sloping, about as broad as high; median carina percurrent; humeral angles large, heavy, triangular and blunt; suprahumeral horns large, heavy, triquerate, longer than the distance between their bases, tips blunt; posterior process long, heavy, tectiform, decurved, close to scutellum and impinging on tegmina, tip blunt and reaching about to the tips of the tegmina; scutellum narrowly

exposed on each side, usually tomentose. Tegmina broad, hyaline; basal and costal areas coriaceous and punctate; veins heavy; five apical and two discoidal cells; apical cells long and narrow; tips roundly pointed; apical limbus well developed. Legs heavy; femora cylindrical; tibiæ triquerate and considerably flattened; hind tarsi longest.

Type *decisus* Walker.

Geographical distribution : This is strictly an Australian genus and has been reported only from that region.

1. *acanthaspis* Fairmaire, Rev. Memb. 515. 19 (1846). — **Pl. 13, fig. 219.**	Australia, Port Jackson, Tweed River, Tamworth, Wellington, New South Wales, Queensland, Highfields, Murray River, South Australia.
2. *consobrinus* Distant, Rhynch. Notes 37 (1916).	Queensland, Rockhampton, Gayndah, Peak Downs, New South Wales, Coolabah, Victoria, Mallee.
3. *cupreus* Distant, Rhynch. Notes 38 (1916).	South West Australia, Yallingup.
4. *decisus* Walker, List Hom. B. M. 621. 54 (1851).	Australia, New Holland.
5. *distinctus* Distant, Rhynch. Notes 38 (1916).	North Australia, Port Darwin.
6. *fraternus* Distant, Rhynch. Notes 36 (1916).	Queensland, Gayndah, Gatton, New South Wales, Capertee, Rylstone, Lyndhurst.
7. *harrisi* Distant, Rhynch. Notes 35 (1916).	Queensland.
8. *laticornis* Funkhouser, Rec. Aus. Mus. XV : 5. 307 (1927).	Papua.
9. *relatus* Distant, Rhynch. Notes 36 (1916).	Queensland, Gayndah.

249. GENUS SEXTIUS STÅL

Sextius Stål, Hem. Afr. IV : 88 (1866).

Characters : Near the preceding genus but with much shorter and differently shaped suprahumerals and at once recognized by the irregular, reticulate venation in the apical areas of the tegmina. Head subquadrate, about twice as broad as high; base lightly arcuate and sinuate; eyes small and somewhat flattened, ocelli small, inconspicuous, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sinuate and sloping only a very little; clypeus broad, extending hardly at all below the inferior margins of the genæ and continuing the apical outline of the face made by those margins. Pronotum convex and bearing a pair of stout suprahumerals and a long, heavy, tectiform posterior process; metopidium vertical, convex, broader than high; median carina faintly percurrent; humeral angles large, heavy and blunt; posterior process long, heavy, tectiform, curving downward, impinging on the scutellum and on the tegmina, tip acute and just about reaching the tips of the tegmina; scutellum narrowly exposed on each side; suprahumeral horns stout, tricarinate, as long as the distance between their bases, extending outward and upward. Tegmina broad, hyaline;

base broadly coriaceous and punctate; veins heavy; an indefinite number of apical and discoidal cells due to the irregular and reticulate venation in the apical half of the tegmen; tip rounded; apical limbus very narrow. Legs simple and heavy; hind tarsi longest.

Type *virescens* Fairmaire.

Geographical distribution : This is another genus which belongs distinctly to the Australian Region.

1. *assimilis* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 376. 4 (1906). — New South Wales, Sydney.
2. *atromaculatus* Distant, Rhynch. Notes 35 (1916). — Queensland.
3. *bucephalus* Distant, Rhynch. Notes 34 (1916). — New South Wales, Sydney.
4. *depressus* Goding, Mon. Aus. Memb. 12 (1903). — Queensland, West Australia, New South Wales, Tweed River, Maitland, Kemsey, Sydney, Brisbane.
5. *interposita* Buckton, Mon. Memb. 231 (1903). — Australia, Adelaide.
6. *kurandæ* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 377. 6 (1906). — Queensland, Kuranda.
7. *major* Distant, Rhynch. Notes 34 (1916). — Queensland, Peak Downs, Gayndah.
8. *occidentalis* Jacobi, Faun. S. W. Aus. II : 20 (1909). — South West Australia.
9. *projectus* Funkhouser, Rec. Aus. Mus. XV : 312 (1927). — West Australia, King George Sound.
10. *reticulatus* Distant, Rhynch. Notes 34 (1916). — North West Australia.
11. *rubrilineus* Buckton, Mon. Memb. 230 (1903). — Australia, Adelaide, Bursaria.
    xantha Buckton, Mon. Memb. 231 (1903).
12. *spretus* Buckton, Mon. Memb. 230 (1903). — Australia, Adelaide.
    longinotum Kirkaldy, Haw. Exp. Sta. Bull. Ent. I : 377 (1906).
13. *tenuis* Goding, Journ. N. Y. Ent. Soc. XXXIV : 245 (1936). — Australia, South Australia, Victoria, New South Wales, Homebush.
14. *virescens* Fairmaire, Rev. Memb. 515. 21 (1846). — **Pl. 13, fig. 220.** — Australia, New Holland, New South Wales, Tarago, Clarence River, Gosford, Lofton, Wollogong, Bungendore, Homebush, Maitland, Sydney, Penrith, Kemsey, Uralla, Newcastle, Queensland, Brisbane, Townsville, Victoria, Gisborne, West Australia, Pine River, Geraldton.
    suffusa Walker, List Hom. B. M. 611. 31 (1851).

250. Genus PERIAMAN Distant

Periaman Distant. Faun. Brit. Ind. 37 (1907).

Characters : A genus which is rather difficult to delimit because of a considerable variation in the characters of its species but showing in general the slender suprahumerals, a rather flat dorsum, a

broadly exposed scutellum and a wing venation which seem sufficiently distinct to warrant the placing of the insects in a separate genus. Head subquadrate, a little broader than high; base arcuate and laterally sinuate; eyes large, ovate and protruding; ocelli very large, prominent, a little farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping, rounded, weakly angulate at corners, edges distinctly flared forward; clypeus broad, extending for two-thirds its length below inferior margins of genæ, tip rounded. Pronotum convex but not strongly gibbous, bearing a pair of slender suprahumerals and a strong, straight posterior process; metopidium vertical, about as broad as high; median carina strongly percurrent; humera angles large and blunt; suprahumeral horns varying in size and structure but usually short, slender, triquerate, not much longer than the distance between their bases and extending outward and upward; dorsum flat; posterior process long, tectiform, tricarinate, lying close to the scutellum and impinging on the tegmina, tip acute and reaching beyond the internal angles but not to the tips of the tegmina; scutellum subtriangular, broadly exposed on each side, base generally tomentose, tip bifurcate. Tegmina semiopaque and more or less pubescent; base very weakly coriaceous; veins strong; five apical and two discoidal cells; tip pointed; apical limbus narrow. Legs long and heavy; tibiæ triquerate and finely spined; hind tarsi longest.

Type *flavolineatus* Buckton.

Geographical distribution : This genus has representatives in India, Malaya, the East Indies and the Philippines, the range covering a considerable amount of territory.

1. *acuticornis* Funkhouser, F. M. S. Mus. 1. 187 (1936).	Malaya, Kuala Lumpur.
2. *brevifrons* Funkhouser, Phil. Memb. 383 (1915).	Philippines, Palawan, Puerto Princesa.
3. *flavolineatus* Buckton, Mon. Memb. 247 (1903). — **Pl. 13, fig. 221.**	India, Tenasserim, Myitta, Mergui, Borneo.
4. *limbatus* Walker, Journ. Linn. Soc. Lond. I : 163. 116 (1857).	Borneo, Sandakan.
5. *pilosus* Distant, Faun. Brit. Ind. App. 157. 3351 (1916).	India, East Himalayas, Kurseong.
6. *pyropinus* Distant, Faun. Brit. Ind. 38. 2154 (1907).	Burma, Ruby Mines.
7. *rectidorsum* Funkhouser, Bull. Brook. Ent. Soc. XXII : 107 (1927).	Sumatra.
8. *wallacei* Distant, Rhynch. Notes 320 (1916).	Borneo, Sarawak.

251. GENUS CENTROTYPUS STÅL

Centrotypus Stål, Hem. Afr. IV : 88 (1866).
Eligius Distant, Rhynch. Notes 152 (1916).
Cryptoparma Goding, Journ. N. Y. Ent. Soc. XXXIX : 3. 313 (1931).

Characters : A very distinct and rather remarkable genus of large decorative insects recognized at once by the strongly gibbous, exaggerated and swollen pronotum, the large, wide-spreading and usually ampliate suprahumerals and the long sinuate posterior process. Head subquadrate, roughly sculptured, broader than high; base arcuate and sinuate; eyes large, ovate and protruding; ocelli large, prominent, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus broad, extending for half its length below inferior margins of genæ, tip rounded. Pronotum very heavy, gibbous and expanded, bearing a pair

of strong suprahumerals and a long posterior process; metopidium vertical, much broader than high; median carina faintly percurrent or obsolete; humeral angles weak, triangular and acute; suprahumeral horns showing considerable variation in size and structure but usually robust, more or less flattened, longer than the distance between their bases, extending upward and outward with the tips curved backward; posterior process long, tectiform, tricarinate, sinuate, lying close to scutellum and impinging on tegmina, tip pointed and extending almost to tips of tegmina; scutellum very narrowly exposed on each side. Tegmina long, narrow, subhyaline or semiopaque, often mottled; basal and costal areas narrowly coriaceous and punctate; veins heavy and often nodulate; five apical and two discoidal cells all of which are inclined to be irregular in shape; tip rounded; apical limbus broad. Legs heavy and simple; hind tarsi longest.

Type *amplicornis* Stål.

Geographical distribution : A large Asiatic and Oceanic genus with a wide distribution as indicated by the following species :

1. *aduncus* Buckton, Mon. Memb. 236 (1903).	Philippines, Luzon.
2. *amplicornis* Stål, Bid. Memb. Kan. 285. 1 (1869) — **Pl. 13, fig. 222.**	Siam, Cambodia, Sumatra.
3. *asmodeus* Distant, Faun. Brit. Ind. 36. 2150 (1907).	India, Tenasserim, Myitta, Malaya, Singapore, Borneo, Sandakan, Sarawak, Kapit.
4. *assamensis* Fairmaire, Rev. Memb. 517. 25 (1846). *costalis* Walker, List Hom. B. M. 615. 44 (1851).	India, Assam, Sikhim, Pankabar, Burma, Rangoon, Tenasserim, Myitta, Siam.
5. *ater* Buckton, Mon. Memb. 238 (1903).	Burma, Ruby Mines.
6. *bowringi* Distant, Rhynch. Notes 291 (1916).	Penang.
7. *brunneus* Funkhouser, J. R. A. S. 82 : 207. 8 (1920).	Borneo, Sandakan.
8. *flavescens* Distant, Faun. Brit. Ind. 35. 2149 (1907).	India, North India, Dehra Dun.
9. *flexuosus* Fabricius, Syst. Ent. IV : 12. 16 (1794). *anchorago* Guérin, Ic. Règ. Anim. (1829).	India, Sylhet, Sikhim, Assam, Shillong, Sibsigar, Burma, Arrakan, Tenasserim, Myitta, Malacca, Perac.
10. *hospes* Kirkaldy, Hon. Exp. Sta. Bull. Ent. I : 378. 1 (1906).	New South Wales, Sydney.
11. *javanensis* Fairmaire, Rev. Memb. 517. 26 (1846).	Java.
12. *laminifer* Walker, Journ. Linn. Soc. Lond. I : 93. 45 (1856).	Borneo, Sarawak.
13. *laticornis* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 44 (1921).	China, Riviere Claire, Haut-Tonkin, Madon.
14. *latimargo* Walker, Journ. Linn. Soc. Lond. I : 163. 17 (1857).	Borneo, Sarawak.
15. *longicornis* Vuillefroy, Ann. Soc. Ent. Fr. IV : 4. 142 (1864).	Borneo, Sarawak.
16. *merinjakensis* Distant, Rhynch. Notes 153 (1916).	Borneo, Mt. Merinjak.
17. *minutus* Goding, Mon. Aus. Memb. 28 (1903).	South Australia, Mosman's Bay, New South Wales, Clarence River, Tamworth.
18. *neuter* Fairmaire, Rev. Memb. 517. 27 (1846).	Java.
19. *nigris* Funkhouser, Rec. Aus. Mus. XV : 5. 306 (1927).	New South Wales.

20. *ortus* Distant, Faun. Brit. Ind. 35. 2148 (1907). — India, Trivandrum.
21. *pactolus* Buckton, Mon. Memb. 233 (1903). — Malaya, Perak.
22. *parvus* Funkhouser, Rec. Ind. Mus. XXIV : 3. 325 (1922). — Malaya, Perak, Taiping.
23. *perakensis* Distant, Rhynch. Notes 318 (1916). — Malaya, Perak.
    alatus (preoccupied) Buckton, Mon. Memb. 237 (1903).
24. *pronotalis* Distant, Rhynch. Notes 317 (1916). — Java.
25. *securis* Buckton, Mon. Memb. 238 (1903). — India, Sikhim, Mungphu, Naga Hills, Nilgiri, Bombay, Burma, Ruby Mines, Borneo, Sandakan.
26. *shelfordi* Distant, Rhynch. Notes 315 (1916). — Borneo, Sandakan, Sarawak.
27. *siamensis* Distant, Rhynch. Notes 316 (1916). — Siam, Malaya, Bulsit. Besar.
28. *tauriformis* Distant, Rhynch. Notes 317 (1916). — Java.
29. *tauris* Distant, Rhynch. Notes 316 (1916). — Siam, Malaya.

252. Genus POGON Buckton

Pogon Buckton, Mon. Memb. 248 (1903).

Characters : This genus is very close to *Otinotus* but differs in having strongly curved veins in the apical area of the tegmen by which character it is most easily recognized. Head subquadrate, twice as broad as high; base gradually arcuate and sometimes slightly sinuate; eyes large, globular and protruding; ocelli large, conspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ horizontal and broadly rounded; clypeus broad, extending for half its length below inferior margins of genæ, tip rounded. Pronotum convex but not highly gibbous, bearing a pair of stout suprahumerals and a slender posterior process; metopidium sloping, broader than high; median carina percurrent; humeral angles large, heavy and blunt; suprahumeral horns short, stout, triquerate, about as long as the distance between their bases, extending outward and upward; posterior process slender, sinuate, lying close to the scutellum and to the tegmina, tip sharp and reaching very little beyond the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina broad, hyaline; basal and costal areas broadly coriaceous and punctate; veins heavy; five apical and two discoidal cells; veins of apical area strongly curved; tip rounded; apical limbus narrow. Legs simple; hind tarsi longest.

Type *incurvatum* Buckton.

Geographical distribution : This genus is found in Ceylon with one questionable species reported from Australia.

1. *albosignatum* Distant, Faun. Brit. Ind. App. 161. 3359 (1916). — Ceylon, Pundaluoya.
2. *atricoxis* Kirby, Journ. Linn. Soc. Zool. XXIV : 164 (1891). — Ceylon, Kandy, Nawalapitya.
3. *auriculatum* Stål, Bid. Memb. Kan. 285. 5 (1869). — Ceylon, Horton Plains.
4. *cuprum* Kirby, Proc. Linn. Soc. Zool. XXIV : 168 (1891). — Ceylon, Badulla, Maskeliya, Kandy, Pundaluoya, Madulsima.
5. *ferrugineum* Melichar, Hom. Ceylon 114. 3 (1903). — Ceylon, Peradeniya.
6. *flavescens* Goding, Amer. Mus. Novit. 25 (1930). — Australia.
7. *incurvatum* Buckton, Mon. Memb. 248 (1903). — Ceylon, Pattipola.

GENERA OF THE TRIBE COCCOSTERPHINI DISTANT

I. *Pronotum covered with tubercles* . . . . COCCOSTERPHUS Stål.

II. *Pronotum smooth, not tuberculate*

A. *Dorsum sinuate; apex of clavus acute*

1. *Pronotum gibbous; corium with four apical cells* . . . . PARAYASA Distant.

2. *Pronotum elevated and compressed; corium with five apical cells* . . . INSITOR Distant.

B. *Dorsum straight; apex of clavus obtuse*

1. *Corium with three apical cells; posterior process very short and slender.* . YASA Distant.

2. *Corium with five apical cells; posterior process long and robust* . . . . KANADA Distant.

253. GENUS COCCOSTERPHUS STÅL

Coccosterphus Stål, Hem. Fabr. II : 51 (1869).
Phaerotus Buckton, Mon. Memb. 255 (1903).
Phaeronotus Buckton, Mon. Memb. 269 (1903).

Characters : A genus of minute, inconspicuous insects recognized at once by their very small size and by the tuberculate pronotum. Head subquadrate, almost as broad as high, a little deflexed; base arcuate, sinuate and feebly bituberculate; eyes very large and ovate, much wider than high; ocelli small, inconspicuous, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus broad, extending for half its length below inferior margins of genæ, tip rounded or truncate. Pronotum convex, entirely covered with small nodules or tubercles, without suprahumerals but with a short, heavy posterior process; metopidium sloping, broader than high, extended over the head in two tubercles; median carina strongly percurrent and nodulate; humeral angles large, heavy, subconical and blunt; no suprahumeral horns; posterior process short, heavy, usually depressed in the middle and swollen at the tip, impinging on the tegmina; sides of mesonotum very narrowly exposed as points on each side; no true scutellum. Tegmina broad, subhyaline, often mottled; base broadly coriaceous and punctate; veins indistinct; five apical and two discoidal cells; tip rounded; no apical limbus. Legs short and heavy; hind tarsi longest.

Type *minutus* Fabricius.

Geographical distribution : This genus has been found in India, Ceylon and parts of the East Indies.

1. *decoloratus* Distant, Faun. Brit. Ind. 71. 2213 (1907).	India, Calcutta.
2. *luteus* Funkhouser, Ind. Forest Rec. XVII : 9 (1933).	India, Madras.
3. *melichari* Goding, Old World Memb. 455 (1934). *minutus* (preoccupied) Melichar, Hom. Cey. 121. 3 (1903).	Ceylon.
4. *minutus* Fabricius, Ent. Syst. Suppl. 514. 32 (1798).	India, Tranquebar, Madras, Lake Chilka, East Indies.
5. *mucronicollis* Motschulsky, Etud. Ent. XIII : 109 (1859).	Ceylon, Kesbewa.
6. *obscurus* Distant, Faun. Brit. Ind. 73. 2215 (1907).	Ceylon, Peradeniya, Heneratgoda.

7. *paludatus* Distant, Faun. Brit. Ind. App. 175. 3384 (1916). — India, South India, Chikkaballapura, Orissa, Puri, Madras, Lake Chilka, Calcutta.

8. *stipulipennis* Buckton, Mon. Memb. 255 (1903). — Borneo, Brunei.

9. *tuberculatus* Motschulsky, Etud. Ent. VIII : 109 (1859). — **Pl. 13, fig. 224**. — India, Ceylon, Peradeniya, Kala-Weisa, Puttalam.
fasciata Melichar, Hom. Ceylon 121. 2 (1903).

254. Genus PARAYASA Distant

Parayasa Distant, Faun. Brit. Ind. App. 176 (1916).

Characters : A genus of very small insects characterized particularly by the lack of suprahumerals, the smooth gibbous pronotum, the sinuate posterior process and the four apical cells of the tegmina. Head subquadrate, broader than high; base arcuate and feebly sinuate; eyes large, ovate and protruding; ocelli small, inconspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ broad, sloping and rounded; clypeus narrow, pointed, extending for half its length below inferior margins of genæ. Pronotum gibbous, without suprahumerals but with a short, sinuate posterior process; metopidium sloping. about as broad as high, usually with a semicircular impression above each eye; median carina percurrent; humeral angles heavy, triangular and blunt; no suprahumerals; posterior process short and sinuate, impinging on both mesonotum and tegmina, tip acute and reaching just about to the internal angles of the tegmina; sides of mesonotum exposed on each side in a sharp point; no true scutellum. Tegmina broad, vitreous or subhyaline; base broadly coriaceous and punctate; veins strong; four apical and two discoidal cells; tip pointed; apical limbus narrow. Legs long and slender; femora cylindrical; tibiæ triquerous, distinctly curved and finely spined; hind tarsi longest.

Type *typica* Distant.

Geographical distribution : This genus has been reported only from British India and the East Indies.

1. *affinis* Distant, Faun. Brit. Ind. App. 179. 3391 (1916). — South India, Nandidrug.
2. *affixa* Distant, Faun. Brit. Ind. App. 178. 3389 (1916). — India, Nilgiri Hills.
3. *atricapilla* Distant, Faun. Brit. Ind. App. 179. 3390 (1916). — India, Nilgiri Hills.
4. *dissimilis* Distant, Faun. Brit. Ind. App. 179. 3392 (1916). — South India, Kodaikanal.
5. *elegantula* Distant, Faun. Brit. Ind. App. 178. 3388 (1916). — India, Nilgiri Hills, Ootacamund, Somerdale, South India, Kodaikanal.
6. *maculipennis* Funkhouser, J. R. A. S. 82 : 224. 50 (1920). — Borneo, Sandakan.
7. *maculosa* Distant, Faun. Brit. Ind. App. 177. 3387 (1916). — South India, Nandidrug, Kodaikanal.
8. *margherita* Distant, Faun. Brit. Ind. App. 180. 3393 (1916). — India, Assam, Margherita.
9. *modesta* Distant, Faun. Brit. Ind. App. 181. 3395 (1916). — India, Nilgiri Hills.
10. *nilgiriensis* Distant, Faun. Brit. Ind. App. 180. 3394 (1916). — India. Nilgiri Hills.

11. *rustica* Distant, Faun. Brit. Ind. App. 181. 3396 (1916). India, Nilgiri Hills, Lovedale.

12. *typica* Distant, Faun. Brit. Ind. App. 177. 3386 (1916). — **Pl. 13, fig. 225.** South India, Kodaikanal.

255. Genus INSITOR Distant

Insitor Distant, Faun. Brit. Ind. App. 176 (1916).

Characters : The type species of this monotypic genus shows a peculiar pronotal character which at once distinguishes it from the other genera of the tribe. The disc is elevated and compressed with the anterior and posterior dorsal margins angulate, and the median carina extending upward in a sharp crest. Other characters which are probably generic are as follows : Head subquadrate, twice as broad as high; base feebly arcuate and sinuate; eyes globular; ocelli large, about equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ horizontal and rounded; clypeus extending for half its length below inferior margins of genæ, tip rounded. Pronotum anteriorly prominently elevated, laterally flattened, the anterior and posterior margins of the disc roundly angulate and compressed; no suprahumerals; metopidium vertical with the crest overhanging the head; median carina strongly elevated; humeral angles large and rounded; posterior process heavy, concavely depressed in the middle and convexly ampliate posteriorly, tip blunt and not reaching the internal angles of the tegmina; sides of mesonotum narrowly exposed on each side. Tegmina broad and mottled; base strongly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus narrow. Legs long and slender; hind tibiæ lightly curved; hind tarsi longest.

Type *exemplificatus* Distant.

Geographical distribution : This genus is known only from the type species from India.

1. *exemplificatus* Distant, Faun. Brit. Ind. App. 176. 3385 (1916). — **Pl. 13, fig. 226.** India, Nilgiri Hills.

256. Genus YASA Distant

Yasa Distant, Faun. Brit. Ind. 74 (1907).

Characters : This is another monotypic genus characterized, as far as may be judged by the type species, by the peculiar venation of the tegmina, which show only three large apical cells, and by the very short, slender posterior process. Head subquadrate, wider than high; base feebly arcuate and sinuate; eyes globular and protruding; ocelli large, a little farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus broad, extending for half its length below inferior margins of genæ, tip truncate. Pronotum convex, gibbous, without suprahumerals but with a short, weak posterior process; metopidium sloping, much wider than high; median carina obsolete; humeral angles large and blunt; no suprahumerals; posterior process short, slender and recurved, its tip not nearly reaching the internal angles of the tegmina; sides of mesonotum visible but not spinose. Tegmina long, pointed, mottled hyaline; base broadly coriaceous and punctate; veins rather indistinct; three apical and two discoidal cells; tip pointed; apical limbus broad. Legs slender; hind tibiæ strongly curved; hind tarsi longest.

Type *greeni* Distant.

Geographical distribution : This genus is known only from the type species from Ceylon.

1. *greeni* Distant, Faun. Brit. Ind. 74. 2217 (1907). — **Pl. 13, fig. 227.** Ceylon, Peradeniya, Kandy.

257. GENUS KANADA DISTANT

Kanada Distant, Faun. Brit. Ind. 74 (1907).

Characters : This genus bears a strong resemblance to the genus *Gargara* of the next tribe but differs from *Gargara* in having no true scutellum but having the mesonotum produced on each side in a rather long, flattened spine. It differs from the other genera of the tribe *Coccosterphini* in having the dorsum straight, the apex of the clavus obtuse, the posterior process long, strong and robust, and in having five apical cells in the tegmina. Head subquadrate, twice as broad as high; base weakly arcuate and slightly sinuate; eyes rather small, globular and protruding; ocelli large, conspicuous, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ rounded and nearly horizontal; clypeus broad, extending for half its length below inferior margins of genæ, tip broadly rounded. Pronotum weakly convex, not strongly gibbous, without suprahumerals but with a strong posterior process; metopidium sloping, twice as broad as high; median carina faintly percurrent; humeral angles small, triangular and sharp; no suprahumerals; dorsum nearly flat; posterior process long, heavy, straight, rounded above, impinging on tegmina, tip acute and reaching beyond the internal angles of the tegmina; sides of mesonotum plainly visible and projecting backward in laminate points. Tegmina broad and hyaline; base very narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad. Legs heavy; femora thickened; tibiæ strongly longitudinally grooved and finely spined; hind tarsi longest.

Type *irvinei* Distant.

Geographical distribution : This genus is known only from the type species from India.

1. *irvinei* Distant, Faun. Brit. Ind. 75. 2218 (1907). — **Pl. 13, fig. 228.** India, Bengal, Ranchi.

GENERA OF THE TRIBE GARGARINI DISTANT

I. *Posterior process touching scutellum*
   A. *Posterior trochanters unarmed*
      1. *Posterior process not laminate*
         a. *Posterior process straight*
            b. *Pronotum without carina above humeral angles* . . . GARGARA Amyot and Serville.
            bb. *Pronotum with carina above humeral angles* . . . . XANTHOSTICTA Buckton.
         aa. *Posterior process strongly sinuate* . . . . EBHUL Distant.
      2. *Posterior process dilated into a plate* . . . . SUBRINCATOR Distant.
   B. *Hind trochanters armed with spines.*
      1. *Humeral angles strongly produced in auriculate processes* . . SIPYLUS Stål.
      2. *Humeral angles weak, not produced* . . . . CENTROTOSCELUS Funkhouser.

II. *Posterior process not touching scutellum*

A. *Posterior process arched*

1. *Posterior process impinging on tegmina behind scutellum* . . . KOMBAZANA Distant.
2. *Posterior process curved upward behind scutellum* . . . . . PROMINTOR Distant.

B. *Posterior process sinuate*

1. *Pronotum spinose* . . . . HAMMA Buckton.
2. *Pronotum not spinose*
   a. *Metopidium sloping, unicarinate.* . . . . UMFILIANUS Distant.
   aa. *Metopidium gibbous, tricarinate* . . . . TIBERIANUS Distant.

258. GENUS GARGARA AMYOT AND SERVILLE

Gargara Amyot and Serville, Hémip. 537 (1843).
Maerops Buckton, Mon. Memb. 257 (1903).

Characters : This is the largest genus in the family both in number of species, of which we are convinced there are yet many to be described, and in numbers of individuals which in some regions are to be found in almost unbelievable multitudes. On account of its size, it would be very desirable to subdivide this genus, if only to facilitate systematic work, but we can find no natural characters on which such a subdivision can be based. The representatives of *Gargara* are all small, robust, heavy-bodied, subtriangular insects with very distinct generic characters of which the following are the most important: Head subquadrate, broader than long; base arcuate and sinuate; eyes large and ovate; ocelli large, conspicuous, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus broad, usually extending for at least half its length below inferior margins of genæ, tip rounded. Pronotum low and convex, without suprahumerals but with a short, stout, straight posterior process; metopidium sloping, broader than high; humeral angles broad, triangular and blunt; median carina usually percurrent but sometimes almost obsolete; surface of pronotum varying in character but usually punctate or pubescent or both; posterior process short, heavy, straight, tectiform, impinging on both scutellum and tegmina, with the tip sharp and reaching just about to the internal angles of the tegmina; scutellum broadly exposed on each side. Tegmina broad, hyaline, base usually punctate and pubescent, corium often mottled with various colors; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad. Hind wings with three apical cells. Legs short, stout and heavy; hind trochanters unarmed; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *genistæ* Fabricius.

Geographical distribution : This is a very cosmopolitan genus with as wide a distribution as may be found in any genus in the family. Representatives are to be found in practically all parts of the Old World. In spite of this fact, however, and of the large number of species, there is a surprisingly small amount of variation within the group.

1. *addahensis* Distant, Ann. Mag. Nat. Hist. XVI : 96. 489 (1915). — West Africa, Addah, Gold Coast, Fernando Po.
2. *ænea* Distant, Ann. Mag. Nat. Hist. XVI : 96. 491 (1915). — Africa, Uganda, Entebbe, Bogondo, Unyoro.

3. *affinis* Distant, Faun. Brit. Ind. 61. 2192 (1907).	India, Bombay, Tenasserim, Myitta, Borneo, Banguey.
4. *akonis* Matsumura, Cicad. Jap. II : 20. 19 (1912).	Formosa.
5. *alboapicata* Distant, Faun. Brit. Ind. 66. 2206 (1907).	India, Tenasserim, Myitta, Sumatra, Java, Formosa.
6. *albolinea* Funkhouser, Journ. F. M. S. Mus. XIII : 255 (1927).	Malaya, Kuala Lumpur.
7. *albomacula* Funkhouser, Journ. F. M. S. Mus. XIII : 254 (1927).	Malaya, Selangor.
8. *apicata* Melichar, Hom. Ceylon 124. 6 (1903).	Ceylon, Peradeniya.
9. *arisanus* Matsumura, Cicad. Jap. II : 24. 17 (1912).	Formosa.
10. *asperula* Walker, List Hom. B. M. Suppl. 162 (1858).	Africa, Sierra Leone.
11. *aterinna* Distant, Ann. Mag. Nat. Hist. XVI : 96. 491 (1915).	Africa, Uganda, Budongo, Unyoro; Buamba, Semliki, Mabira, Chagwe.
12. *attenuata* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 236 (1914).	Banguey Island, Penang, Borneo, Sandakan, Sumatra, Siberut.
13. *aurea* Funkhouser, Ind. For. Rec. XVII : 8 (1933).	India, Coorg.
14. *australiensis* Funkhouser, Rev. Suisse de Zool. 43 : 7. 197 (1936).	Australia.
15. *bicolor* Funkhouser, Faun. Sumat. 9 (1927).	Sumatra, China, Hainan Island.
16. *botanshana* Kato, Insect World XXXII : 23 (1928).	Formosa.
17. *brunnea* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 235 (1914).	Philippines, Mt. Maquiling.
18. *brunneidorsata* Funkhouser, Phil. Journ. Sci. XL : 128 (1929).	Java.
19. *brunneifasciata* Funkhouser, Ling. Sci. Journ. XVII : 2. 204 (1938).	China.
20. *cælata* Distant, Faun. Brit. Ind. App. 172. 3379 (1916).	India, Nilgiri Hills.
21. *carinata* Funkhouser, Treubia XV : 1. 129 (1935).	Java.
22. *castanea* Kato, Insect World XXXII : 16 (1928).	Formosa.
23. *citrea* Distant, Faun. Brit. Ind. 63. 2197 (1907).	India, Tenasserim, Myitta, Burma, Moulmein, Borneo, Sandakan, Java.
24. *confusa* Distant, Faun. Brit. Ind. App. 171. 3375 (1916).	India, Calcutta.
25. *consocia* Walker, Journ. Linn. Soc. Zool. I : 164. 122 (1857).	Borneo.
26. *contraria* Distant, Faun. Brit. Ind. App. 170. 3374 (1916).	India, Punjab, Lahore.
27. *davidi* Fallou, Rev. Ent. 354 (1891).	China, Peking, Manchuria.
28. *delimitata* Distant, Faun. Brit. Ind. 66. 2205 (1907).	India, Assam, Margherita.
29. *discrepans* Goding, Amer. Mus. Novit. 24 (1930).	Borneo.
30. *donitzæ* Matsumura, Cicad. Jap. II : 23. 15 (1912).	Japan, Honshu.
31. *dorsata* Funkhouser, Journ. F. M. S. Mus. XVII : 717 (1935).	Malaya.
32. *dorsimaculata* Kato, Zool. Soc. Jap. 298 (1930).	Formosa.
33. *elegans* Kato, Insect World XXXII : 22 (1928).	Formosa.
34. *elongata* Kato, Insect World XXXII : 24 (1928).	Formosa.
35. *escalerai* Pelaez, Memb. Fernando Po 13 (1935).	Africa, Fernando Po.

36. *extrema* Distant, Faun. Brit. Ind. App. 171. 3376 (1916).	Ceylon, Peradeniya.
37. *fasceifrontis* Funkhouser, Phil. Journ. Sci. XXXIII : 122 (1927).	Philippines, Luzon.
38. *fasciata* Kato, Zool. Soc. Jap. 295 (1930).	Japan.
39. *ferrugata* Melichar, Hom. Ceylon 123. 4 (1903).	Ceylon, Peradeniya, Keshewa, Weligama, Kandy.
40. *flavipes* Funkhouser, Notes D'Ent. Chinoise IV : 2. 31 (1937).	Indo-China.
41. *flavocarinata* Funkhouser, Faun. Sumat. 8 (1927).	Sumatra.
42. *flavolineata* Distant, Faun. Brit. Ind. 65. 2204 (1907).	India, Bengal, Ranchi, Ceylon, Peradeniya, Burma.
43. *fragila* Funkhouser, Phil. Journ. Sci. XXXIII : 121 (1927).	Philippines, Samar.
44. *fraterna* Distant, Ann. Mag. Nat. Hist. XVI : 96. 490 (1915).	West Africa, Addah, Gold Coast.
45. *fumipennis* Kato, Zool. Soc. Jap. 299 (1930).	Formosa.
46. *garampinus* Matsumura, Cicad. Jap. II : 22. 12 (1912).	Formosa.
47. *genistæ* Fabricius, Spec. Ins. II : 318. 17 (1781).— **Pl. 13, fig. 229.**	Europe, England, France, Germany, Austria, Spain, Italy, Portugal, United States (Introduced), New Jersey, Connecticut, Japan (Introduced).
48. *gracila* Funkhouser, Phil. Journ. Sci. XXXIII : 120 (1927).	Philippines, Samar.
49. *granulata* Funkhouser, Phil. Journ. Sci. XXXIII : 123 (1927).	Philippines, Mindanao, Luzon, Borneo, Java.
50. *grisea* Funkhouser, Phil. Journ. Sci. XV : 1. 25 (1919).	Philippines, Manila.
51. *hainanensis* Funkhouser, Ling. Sci. Journ. XVI : 2. 244 (1937).	China, Hainan Island.
52. *hoffmanni* Funkhouser, Ling. Sci. Journ. XVI : 2. 245 (1937).	China, Hainan Island.
53. *horishana* Matsumura, Cicad. Jap. II : 23. 14 (1912).	Formosa.
54. *hyalifascia* Funkhouser, Faun. Sumat. 8 (1927).	Sumatra.
55. *hyalina* Kato, Zool. Soc. Jap. 299 (1930).	Formosa.
56. *indicata* Bierman, Notes Mus. Leid. XXXIII : 45 (1910).	Dutch East Indies.
57. *irrorata* Funkhouser, Notes Phil. Memb. 35 (1918).	Philippines, Benguet, Baguio.
58. *kawakamii* Matsumura, Cicad. Jap. II : 26. 20 (1912).	Formosa.
59. *lata* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 51 (1921).	China, Kiautschau.
60. *laticapitata* Kato, Insect World XXXII : 21 (1928).	Formosa.
61. *ligustri* Matsumura, Cicad. Jap. II : 21. 11 (1912).	Japan, Honshu.
62. *luconica* Fairmaire, Rev. Memb. 255. 45 (1846).	Philippines, Negros, Cuernos Mts., Mindanao, Dapitan, Luzon, Mt. Maquiling, Penang, Borneo, Sandakan, Sumatra, Malaya.
63. *luteinervis* Funkhouser, Rev. Suisse Zool. XLIII : 7. 198 (1936).	Celebes.
64. *luteipennis* Funkhouser, Journ. Ent. and Zool. VI : 71 (1914).	Philippines, Los Banos.
65. *maculata* Funkhouser, Ann. Ent. Soc. Amer. XXIX : 2. 249 (1936).	North Andaman Isls.

66. *maculipennis* Funkhouser, Notes Phil. Memb. 32. 38 (1918). — Philippines, Luzon, Benguet, Baguio, Borneo, Sandakan, Sumatra.

67. *majuscula* Distant, Faun. Brit. Ind. 61. 2193 (1907). — India, Sikhim, Mungphu, Bengal Hills, Rangamat, Chittagong, Pashok, Darjeeling, East Himalayas.

68. *makalakæ* Distant, Ins. Trans. I : 217 (1908). — Africa, Transvaal.

69. *marginata* Kato, Zool. Soc. Jap. 298 (1930). — Formosa.

70. *matsumurai* Kato, Zool. Soc. Jap. 298 (1930). — Formosa

71. *minor* Funkhouser, Notes Mus. Heude XXIII : 11 (1934). — China.

72. *minuscula* Walker, Journ. Linn. Soc. Zool. X : 190 (1868). — Mysol.

73. *minuta* Funkhouser, Journ. N. Y. Ent. Soc. XXII : 3. 236 (1914). — Banguey Island, Java.

74. *mixta* Buckton, Mon. Memb. 257 (1903). — India, Bombay, Calcutta, Tenasserim, Myitta, Ceylon, Bolongoda, Colombo, Peradeniya, Nelanda, Kekirawa, Puttalam, South India, Nandidrug, Coimbatore, Behar, Akra, Cochin State, Perambikulam, Borneo, Sandakan, China, Honan Island.

75. *myittæ* Distant, Faun. Brit. Ind. 64. 2200 (1907). — India, Tenasserim, Myitta.

76. *nandidrugana* Distant, Faun. Brit. Ind. App. 171. 3377 (1916). — South India, Nandidrug.

77. *nervosa* Funkhouser, Malayan Memb. 13. 25 (1918). — Malaya, Singapore, Java.

78. *nigra* Funkhouser, J.R.A.S. LXXXII : 223. 49 (1920). — Borneo, Sandakan.

79. *nigriceps* Bierman, Notes Mus. Leid. XXXIII : 46 (1910). — Dutch East Indies.

80. *nigroapicata* Funkhouser, Phil. Journ. Sci. XXXIII : 119 (1927). — Philippines, Palawan.

81. *nigrocarinata* Funkhouser, Journ. N.Y. Ent. Soc. XXII : 3. 1 (1914). — Philippines, Los Banos, Luzon, Mt. Maquiling, Benguet, Baguio.

82. *nigrofasciata* Stål, Hem. Phil. 729. 5 (1870). — Philippines, Luzon, Mt. Maquiling, Mt. Banahao, Mindanao, Iligan, Dapitan, Davao, Laguna, Paete, Borneo, Sandakan, India, Bombay, Kanara, Talewadi, Castle Rock.

83. *nigromaculata* Funkhouser, Faun. Sumat. 10 (1927). — Sumatra, Borneo.

84. *nigronervosa* Kato, Ins. World XXXII : 18 (1928). — Formosa.

85. *nitidipennis* Funkhouser, Journ. Ent. and Zool. VI : 71. 14 (1914). — Philippines, Los Banos, Mt. Maquiling, Mt. Banahao, Mindanao, Iliga, Dapitan, Butuan, Davao, Luzon, Paete, Benguet, Baguio, Malaya, Singapore, Penang, Panay, Antique, Culasi, Borneo, Sandakan, Sarawak, Mujang, Sumatra, China, Hainan Isl., Doerian Island.

86. *nodinervis* Funkhouser, Phil. Journ. Sci. XXXIII : 122 (1927). — Philippines, Manila.

87. *nodipennis* Funkhouser, Faun. Sumat. 9 (1927). — Sumatra.

88. *nokazana* Kato, Insect World XXXII : 21 (1928). — Formosa.

89. *nyanzai* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 154 (1927). — Africa, Victoria Nyanza, Cameroons.

90. *opaca* Funkhouser, Ling. Sci. Journ. XVII : 2. 201 (1938). — China.

91. *orientalis* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 155 (1927). — Russia, Ussuri, Lake Khanka.

92. *ornata* Funkhouser, Phil. Journ. Sci. XL : 128 (1929). — Borneo.

93. *pallida* Kato, Insect World XXXII : 19 (1928). — Formosa.
minuta (preoccupied) Kato, Insect World XXXII : 19 (1928).
var. : *lineata* Kato, Insect World XXXII : 19 (1928).

94. *parvula* Lindberg, Pal. Cic. 27 (1927). — Russia, Spasskaja.

95. *patruelis* Stål, Freg. Eug. Res. Ins. 285. 196 (1859). — Philippines, Luzon, Malinao, Tayabas, Mt. Banahao, Mindanao, Davao, Sumatra, Borneo.

96. *penangi* Funkhouser, Malayan Memb. 11. 23 (1918). — Malaya, Penang, Borneo, South India.

97. *perpolita* Distant, Ann. Mag. Nat. Hist. XVI : 96. 490 (1915). — Africa, Uganda, Budongo, Unyoro, Mpanga, Toro.

98. *picea* Kato, Insect World XXXII : 20 (1928). — Formosa.

99. *piceola* Melichar, Hom. Ceylon 122. 1 (1903). — Ceylon, Peradeniya, Malaya, Singapore, Penang, Borneo, Sandakan.

100. *pilinervosa* Funkhouser, J. R. A. S. LXXXII : 222. 48 (1920). — Borneo, Sandakan, Java.

101. *pilosa* Funkhouser, Faun. Sumat. 7 (1927). — Sumatra.

102. *pinguis* Funkhouser, Notes Phil. Memb. 33 (1918). — Philippines, Mindinao, Zamboanga, Davao.

103. *projecta* Funkhouser, Malayan Memb. 10. 22 (1918). — Malaya, Singapore, Penang, Java.

104. *proxima* Pelaez, Memb. Fernando Po 9 (1935). — Africa, Fernando Po.

105. *pseudocornis* Funkhouser, Notes d'Ent. Chin. IV : 2. 33 (1937). — China.

106. *pulchella* Funkhouser, Treubia XV : 1. 129 (1935). — Java.

107. *pulchripennis* Stål, Hem. Phil. 729 (1870).	Philippines, Mindanao, Butuan, Luzon, Mt. Maquiling, Los Banos, Davao, Panay, Antique, Culasi, Borneo, Sandakan, India, Sarawak, Mujang.
108. *pygmæa* Walker, List Hom. B. M. 630. 75 (1851).	Philippines, Palawan, Puerto Princessa, Luzon, Mt. Banahao, Panay, Culasi, Antique, Mindanao, Davao, Penang.
109. *rivulata* Distant, Faun. Brit. Ind. 64. 2202 (1907).	India, Sikhim, Mungphu.
110. *robusta* Distant, Faun. Brit. Ind. 61. 2191 (1907).	India, Calcutta, Kurseong, Banguey, Borneo.
111. *rubens* Pelaez, Memb. Fernando Po 11 (1935).	Africa, Cameroons.
112. *rubrogranulata* Bierman, Notes Mus. Leid. XXXIII : 45 (1910).	Dutch East Indies, Borneo, Sandakan, Sumatra, Java, Malaya, Singapore, Penang.
113. *rufula* Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 429 (1935).	Africa, Gold Coast.
114. *rugonervosa* Funkhouser, Notes Phil. Memb. 34 (1918).	Philippines, Luzon, Nueva Vizcaya, Imugan, Panay, Antique, Culasi, Borneo, Sandakan.
115. *selangori* Funkhouser, Journ. F. M. S. Mus. XVII : 718 (1935).	Federated Malay States.
116. *semibrunnea* Funkhouser, Bornean Memb. 477 (1929).	Borneo.
117. *semifascia* Walker, Journ. Linn. Soc. Zool. I : 94. 48 (1856). *malayus* Stål, Eug. Res. Om. Jord. 285 (1859).	Borneo, Malacca.
118. *semivitrea* Walker, Journ. Linn. Soc. Zool. I : 93. 47 (1856).	Malaya, Singapore.
119. *sericea* Distant, Faun. Brit. Ind. 63. 2198 (1907).	Ceylon, Kerbuwa.
120. *setosa* Funkhouser, Treubia XV : 1. 128 (1935).	Boeroe Island.
121. *shinchicuna* Kato, Insect World XXXII : 22 (1928).	Formosa.
122. *sikhimensis* Distant, Faun. Brit. Ind. 64. 2201 (1907).	India, Sikhim, Madras, Kotagiri, South India, Nandidrug.
123. *sinensis* Funkhouser, Notes Mus. Heude 21. 10 (1934).	China.
124. *sinuata* Funkhouser, Journ. N.Y. Ent. Soc. XXII : 3. 237 (1914).	Banguey.
125. *soeroelangoena* Bierman, Notes Mus. Leid. XXXIII : 47 (1910).	Dutch East Indies.
126. *sordida* Funkhouser, Malayan Memb. 13. 26 (1918).	Malaya, Singapore, Sipora, Sumatra.
127. *splendidula* Distant, Faun. Brit. Ind. App. 172. 3378 (1916).	North India.
128. *suigensis* Kato, Zool. Soc. Jap. 299 (1930).	Korea.
129. *sumbawæ* Funkhouser, Journ. N.Y. Ent. Soc. XXII : 3. 237 (1914).	Borneo, Sumbawa Island.
130. *taihokunis* Kato, Insect World XXXII : 17 (1928).	Formosa.
131. *taikomontana* Kato, Insect World XXXII : 17 (1928).	Formosa.

132. *taitoensis* Kato, Insect World XXXII : 24 (1928). Formosa.
133. *tappanus* Matsumura, Cicad. Jap. II : 23. 14 (1912). Formosa.
134. *tectiforma* Funkhouser, Ling. Sci. Journ. XVII : 2. 203 (1938). China.
135. *tigris* Funkhouser, Journ. F.M.S. Mus. XVII : 719 (1935). Federated Malay States.
136. *triangulata* Funkhouser, Malayan Memb. 12. 24 (1918). Malaya, Singapore, Penang, Java.
137. *trinotata* Distant, Faun. Brit. Ind. 63. 2199 (1907). India, Tenasserim, Myitta.
138. *tuberculata* Funkhouser, Journ. Ent. and Zool. VI : 2. 70 (1914). Philippines, Los Banos, Manila, Luzon, Tayabas, Milanao, Mindanao, Davao, Zamboanga, Penang.
139. *tumida* Melichar, Hom. Ceylon 123. 5 (1903). Ceylon, Kandy, Peradeniya, Maskeliya, Puttalam, East Himalayas, Darjeeling, Pashok.
140. *varicolor* Stål, Hem. Phil. 728. 3 (1870). Philippines, Luzon, Los Banos, Mt. Maquiling, Mt. Banahao, Mindanao, Davao, Manila, Rizal, Montalban, Borneo, Java.
141. *variegata* Signoret, Thoms. Arch. Ent. II : 340. 647 (1858). Africa, Calabar, Ituri, Cameroons, Fernando Po.
142. *venosa* Walker, Journ. Linn. Soc. Zool. X : 189 (1868). East Indies, Tondano, Celebes.
143. *virescens* Funkhouser, Journ. F. M. S. Mus. XIII : 256 (1927). Malaya, Kuala Lumpur.
144. *vulpeculus* Breddin, Hem. Celebes 125 (1901). Celebes.
145. *zonata* Matsumura, Cicad. Jap. II : 24. 16 (1912). Formosa.

259. Genus XANTHOSTICTA Buckton

Xanthosticta Buckton, Mon. Memb. 63 (1903).

Characters : Closely related to the preceding genus but differing in having strong lateral carinæ over the front of the pronotum above the humeral angles. These carinæ are often elevated to such an extent as to appear as folds or auriculate ridges. Head subquadrate, broader than high; base weakly arcuate and sinuate; eyes large, ovate protruding; ocelli small, inconspicuous, farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus broad, extending for half its length below inferior margins of genæ, tip rounded or truncate. Pronotum convex with no suprahumerals but with heavy carinæ or folds above the humeral angles and with a short, stout posterior process; metopidium sloping, broader than high; median carina percurrent, lateral carinæ extending forward over metopidium; humeral angles strong, prominent and blunt; posterior process short, heavy, straight and tectiform, tip sharp and reaching just about to the internal angles of the tegmina; scutellum well exposed on each side. Tegmina broad and hyaline; base coriaceous and punctate; veins heavy and often pubescent; five apical and two discoidal cells; tip rounded; apical limbus broad. Legs short and stout; hind trochanters unarmed; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *grisea* Buckton.

Geographical distribution : Only a few species have been described in this genus which seems to be limited to the Philippines and the Indian Archipelago.

1. *biplaga* Walker, Journ. Linn. Soc. Zool. X : 191 (1868). — Celebes.
2. *constipata* Walker, Journ. Linn. Soc. Zool. X : 192 (1868). — Indian Archipelago.
3. *grisea* Buckton, Mon. Memb. 63 (1903). — Philippines.
4. *luzonica* Buckton, Mon. Memb. 64 (1903). — Philippines, Luzon.
5. *pseudocornis* Funkhouser, J. R. A. S. LXXXII : 217. 30 (1920). — **Pl. 13, fig. 230.** — Island of Penang.
6. *trivialis* Buckton, Mon. Memb. 64 (1903). — Philippines, Luzon, Manila, Los Banos.

260. Genus EBHUL Distant

Ebhul Distant, Faun. Brit. Ind. 59 (1907).
Ebhuloides Goding, Journ. N. Y. Ent. Soc. XXXIX : 3. 302 (1931).

Characters : A very distinct genus recognized at once by the tuberculate head, the overhanging flattened anterior edge of the metopidium and the strongly sinuate posterior process. Head subquadrate, almost as high as broad, roughly sculptured; base highly arcuate, weakly sinuate and strongly bituberculate; eyes small and flattened; ocelli large, conspicuous, elevated, twice as far from each other as from the eyes and situated far above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus long and broad, extending for three fourths its length below inferior margins of genæ, tip rounded. Pronotum convex, without suprahumerals but with a strongly sinuate posterior process; metopidium low and sloping, much broader than high, extended slightly over the head in a flattened plate; median carina strongly percurrent; humeral angles heavy, triangular and blunt; posterior process slender and strongly sinuate, impinging on both scutellum and tegmina, sharply tectiform, tip acute and reaching a little beyond the internal angles of the tegmina; scutellum broadly exposed on each side. Tegmina broad, subhyaline, usually heavily mottled with dark colors; basal and costal areas broadly coriaceous and punctate; five apical and two discoidal cells; tip pointed; apical limbus narrow. Legs simple; hind trochanters unarmed; hind tarsi longest.

Type *varius* Walker.

Geographical distribution : This is a comparatively small genus so far as the number of species is concerned but is well represented in individuals which are apparently very abundant. The center of distribution seems to be the Indian Archipelago.

1. *carinatus* Funkhouser, Phil. Memb. 393 (1915). — Philippines, Mindanao, Butuan.
2. *elegans* Funkhouser, Phil. Journ. Sci. XL : 117 (1929). — Borneo.
3. *formicarius* Distant, Faun. Brit. Ind. App. 3373 (1916). — Upper Burma, Maymyo.
4. *maculipennis* Funkhouser, Rec. Ind. Mus. XXIV : 3. 326 (1922). — India, Pashok, Darjeeling, East Himalayas.
5. *notatus* Funkhouser, Faun. Sumat. 17 (1927). — Sumatra, Gunung Singgalang.
6. *uniformis* Funkhouser, Faun. Sumat. 18 (1927). — Sumatra, Fort de Kock, Gunung Singgalang.

7. *varius* Walker, List Hom. B. M. Suppl. 162 (1858). — **Pl. 13, fig. 231.** Burma, Maymyo, Borneo, Sarawak, Malaya, Singapore, Selangor, Penang Island, Sumatra, Fort de Kock, Java.

261. Genus SUBRINCATOR Distant

Subrincator Distant, Rhynch. Notes 157 (1916).

Characters : We have not seen the single species which represents this genus. It has never been figured nor has it been recognized in the literature of the family except in catalogues since its original description. Consequently we can only quote Distant's original generic description as follows :

« Pronotum with the disk broad, moderately convex, very prominently, centrally, longitudinally carinate, lateral processes absent, but the lateral margins broadly obtusely subangulate, the posterior process short, laminately, convexly dilated, its apex shortly subacute, about reaching the posterior angle of the inner tegminal margin; face broader than long, rugose, eyes prominent; tegmina a little more than twice as long as broad, the veins prominent, four apical cells; legs robust, but tibiæ not dilated. »

The genus should be easily recognized by the broad, laminate posterior process which would serve to distinguish it from any of the other nearly related genera.

Type *tonkinensis* Distant.

Geographical distribution : The genus is known only from the type species from north Indo-China.

1. *tonkinensis* Distant, Rhynch. Notes 157 (1916). Indo-China, Tonkin, Lao Kay, Chapa.

262. Genus SIPYLUS Stål

Sipylus Stål, Analect. Hem. 387 (1866).
Formocentrus Kato, Zool. Soc. Jap. 284 (1930).

Characters : The insects of this genus are at once recognized by their strongly produced auriculate humeral angles and by their robust triangular bodies which differentiate them from all of their near relatives. Head subquadrate, twice as broad as high, roughly sculptured, usually pubescent; base strongly arcuate and sinuate; eyes ovate; ocelli large, prominent, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus subquadrate, extending for half its length below inferior margins of genæ. Pronotum low and flat, without suprahumerals but with broad well developed humeral angles and often with strong rugæ on the dorsal surface; metopidium low, sloping, much broader than high; humeral angles very strong and auriculate; median carina percurrent; no suprahumeral horns; posterior process short, robust, flat, roughly carinate, tip blunt and reaching just about to the internal angles of the tegmina; scutellum well exposed on each side. Tegmina broad, hyaline, base broadly coriaceous and punctate; veins heavy and often nodulate; five apical and two discoidal cells; apical limbus narrow. Legs simple, heavy and robust; hind tarsi longest.

Type *crassulus* Stål.

Geographical distribution : This is a small genus with a limited distribution. Species have been reported, however, from the Oriental, Philippine and Archipelagic regions as follows :

1. *acuticornis* Funkhouser, Notes Phil. Memb. 30 (1918).	Philippines, Luzon, Nueva Viscaya, Imugan.
2. *albifasciatus* Kato, Insect World XXXII : 14 (1928).	Formosa.
3 *auriculatus* Funkhouser, Ling. Sci. Journ. XVI : 2. 243 (1937).	China, Hainan Island.
4. *crassulus* Stål, Freg. Eug. Res. Ins. 285. 194 (1859).	Philippines, Luzon, Mt. Banahao, Mindanao, Davao.
5. *dilatatus* Walker, List. Hom. B. M. 630. 74 (1851). — **Pl. 13, fig. 232.** *nodipennis* Funkhouser, Journ. Ent. and Zool. VI : 72. 15 (1914).	Philippines, Los Banos, Mindanao, Davao, Singapore, Borneo, Sandakan, Sumatra, Sipora.
6. *guttulinervis* Matsumura, Cic. Jap. II : 25. 18 (1912).	Formosa.
7. *latifasciatus* Kato, Insect World XXXII : 14 (1928).	Formosa.
8. *lineatus* Kato, Insect World XXXII : 13 (1928).	Formosa.
9. *minutus* Kato, Insect World XXXII : 14 (1928).	Formosa.
10. *rotundatus* Funkhouser, Phil. Journ. Sci. XXXIII : 118 (1927).	Philippines, Luzon.
11. *sericeus* Funkhouser, Ling. Sci. Journ. XVII : 2. 200 (1938).	China.
12. *truncaticornis* Funkhouser, Ling. Sci. Journ. XVII : 2. 200 (1938).	China.
13. *typicus* Kato, Zool. Soc. Jap. 284 (1930).	Formosa, Japan.

263. Genus CENTROTOSCELUS Funkhouser

Centrotoscelus Funkhouser, Journ. Ent. and Zool. VI : 72 (1914).
Arisangargara Kato, Insect World XXXII : 30 (1928).

Characters : This genus is very distinct because of the fact that the insects have no suprahumerals nor extended humeral angles but never the less have the spines on the inner surface of the hind trochanters as in the horned genus *Tricentrus*. We are not able to read the Japanese language and are not entirely satisfied with any translation which we have been able to secure of Kato's original description of the genus *Arisangargara* but from his figures and particularly from his characterization of the humeral angles as « corners convex » (translated) and of the hind trochanters with « teeth projecting outward » (translated) we are convinced that *Arisangargara* must be considered as a synonym of *Centrotoscelus*.

Head subquadrate, wider than long; base weakly arcuate and sinuate; eyes globular and protruding; ocelli large, prominent, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and strongly curved; clypeus with small lateral lobes, tip swollen, extending for more than half its length below inferior margins of genæ. Pronotum low and broad, without suprahumerals but with a well developed posterior process; metopidium sloping, much broader than high; median carina faintly percurrent; humeral angles weak and triangular, not auriculate; posterior process slender, weakly sinuate, tectiform, tip acute and just reaching the internal angles of the tegmina; scutellum well exposed on each side. Tegmina broad, hyaline, base coriaceous and punctate and usually pubescent; veins strong; five apical and two discoidal

cells; tip rounded; apical limbus narrow. Legs robust; hind trochanters armed with teeth; femora cylindrical; tibiæ triquerate; hind tarsi longest.

Type *typus* Funkhouser.

Geographical distribution : *Centrotoscelus* was originally described from the Philippine Islands but has since been reported from the Oriental and Malayan regions.

1. *borneensis* Funkhouser, J. R. A. S. 82 : 215. 28 (1920).	Borneo, Sandakan.
2. *brevispinus* Funkhouser, J. R. A. S. 82 : 216. 29 (1920). *brevicornis* (error) Goding, Old World Memb. 459 (1934).	Borneo, Sandakan.
3. *brunneus* Funkhouser, Phil. Journ. Sci. XXXIII : 117 (1927).	Philippines, Luzon.
4. *concavus* Funkhouser, Notes Phil. Memb. 31 (1918).	Philippines, Luzon, Benguet, Nueva Vizcaya, Imugan, Sumatra, Borneo.
5. *flava* Kato, Insect World XXXII : 20 (1928).	Formosa.
6. *gracilis* Kato, Insect World XXXII : 27 (1928).	Formosa.
7. *handshini* Funkhouser, Rev. Suisse de Zool. XLIII : 7. 196 (1936).	Flores.
8. *luteus* Funkhouser, Notes Phil. Memb. 30 (1918).	Philippines, Benguet, Baguio.
9. *maculipennis* Funkhouser, Journ. F. M. S. Mus. XVII : 3. 579 (1934).	Malaya.
10. *marginata* Kato, Insect World XXXII : 29 (1928).	Formosa.
11. *matsumurai* Kato, Insect World XXXII : 30 (1928). *variegatus* (preoccupied) Matsumura, Cic. Jap. II : 21 (1912). *koshuensis* (preoccupied) Matsumura, Cic. Jap. II : 19 (1912).	Formosa.
12. *montana* Kato, Zool. Soc. Jap. 300 (1930).	Formosa.
13. *nigra* Kato, Insect World XXXII : 27 (1928).	Formosa.
14. *nigrifrons* Kato, Insect World XXXII : 29 (1928).	Formosa.
15. *nitida* Kato, Insect World XXXII : 28 (1928).	Formosa.
16. *typus* Funkhouser, Journ. Ent. and Zool. VI : 73. 16 (1914).— **Pl. 13, fig. 233.**	Philippines, Luzon, Los Banos.

264. Genus KOMBAZANA Distant

Kombazana Distant, Ins. Trans. 217 (1908).

Characters : The absence of suprahumerals and the arched posterior process which bends down to impinge on the tegmina at the posterior end are the chief characters for indentification of this genus. Head subquadrate, wider than long, roughly sculptured; base arcuate and sinuate; eyes globular; ocelli prominent, equidistant from each other and from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus long, narrow, extending for half its length below inferior margins of genæ, tip pointed. Pronotum gibbous, no suprahumerals, weak humeral angles, posterior process arched at base; metopidium sloping, wider than high; median carina faintly percurrent; no suprahumeral horns; humeral angles very small and weak; posterior process thick, heavy and arched above the scutellum, then bending downward and impinging on the tegmina, tip sharp and reaching a little beyond the internal angles of the tegmina; scutellum entirely exposed, subtriangular, longer than wide, tip notched. Tegmina hyaline, base broadly coriaceous and punctate; veins strong; four apical and three discoidal cells; tip rounded; apical limbus well developed. Legs robust; tibiæ somewhat flattened; hind tarsi longest.

Type *fidelis* Distant.

Geographical distribution : This genus is represented by only two species both from the Transvaal region of South Africa.

1. *fidelis* Distant, Ins. Trans. 218 (1908). — **Pl. 14, fig. 234.** Africa, Transvaal, Pretoria.
2. *gargaria* Distant, Ins. Trans. 217 (1908). Africa, Transvaal.

265. Genus PROMINTOR Distant

Promintor Distant, Rhynch. Notes LVII : 495 (1915).

Characters : This genus is very close to the preceding and differs chiefly in having five apical cells in the corium and in having the posterior process curving upwards and backward behind the scutellum. The insects are small and inconspicuous. Head subquadrate, wider than long, slightly deflexed; base arcuate and sinuate; eyes ovate; ocelli large, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus extending for half its length below inferior margins of genæ. Pronotum elevated, convex, unarmed; metopidium sloping, wider than high, an irregular foveate spot on each side; median carina strongly percurrent; humeral angles very weak and poorly developed; no suprahumeral horns; posterior process heavy, sinuate, curving downward to apex of scutellum and then upward, tip sharp and just about reaching the internal angles of the tegmina; scutellum large, heavy, entirely exposed. Tegmina hyaline, base coriaceous and punctate; five apical and three discoidal cells; apical limbus well developed. Legs simple; hind tarsi longest.

Type *nominatus* Distant.

Geographical distribution : This genus is known only from the type species which was collected at the mouth of the Umkomaas River in Natal.

1. *nominatus* Distant, Rhynch. Notes LVII : 495 (1915). — **Pl. 14, fig. 235.** Africa, Natal.

266. Genus HAMMA Buckton

Hamma Buckton, Trans. Linn. Soc. Zool. IX : 330 (1905).

Characters : This genus bears a strong superficial resemblance to the genus *Amitrochates* Distant, having a similar sinuate and nodulate posterior process but the pronotum is unarmed which of course places it in a different tribe and the tegmen shows a distinct and rather peculiar stigma on the costal margin, the latter character being characteristic of the genus and very rare in the Membracidæ. The members of the genus are all small, dark insects and are apparently very rare. Head subtriangular; base arcuate and slightly sinuate; eyes small and ovate; ocelli small, inconspicuous, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and weakly curved; clypeus subquadrate, extending for half its length beyond internal angles of tegmina. Pronotum convex, gibbous, unarmed, tuberculate and spined; metopidium nearly vertical, about as broad as high; median carina irregularly percurrent; humeral angles strong and sharp; no suprahumeral horns; posterior process heavy, sinuate, roughly trilobed, tuberculate, spined, arising well above the scutellum and touching the tegmina only at the middle lobe, tip rounded or

spined and reaching considerably beyond the internal angles of the tegmina but not to their tips; scutellum robust, subtriangular, entirely exposed, recurved, tip widely bifurcate. Tegmina broad, hyaline, base coriaceous and punctate; veins strong; five apical and two discoidal cells; tip rounded; apical limbus broad; a large, heavy, punctate stigma on about the middle of the costal margin of the corium. Legs simple; all tarsi about equal in length.

Type *nodosus* Buckton.

Geographical distribution : This is an African genus which is apparently not often seen and is represented by only three species as follows :

1. *mabirensis* China, Ann. Mag. Nat. Hist. XI : 463 (1923). — **Pl. 14, fig. 236.** Africa, Uganda, Mabira.
2. *nodosus* Buckton, Trans. Linn. Soc. Zool. IX : 330 (1905). West Africa, Cameroons.
3. *pattersoni* Distant, Rhynch. Notes 157 (1916). Africa, Gold Coast, Aburi.

267. Genus UMFILIANUS Distant

Umfilianus Distant, Rhynch. Notes LVII : 496 (1915).

Characters : We have never seen either of the described representatives of this genus and neither of them has been recognized or figured in the literature of the family except in catalogue references since their original descriptions. We can therefore only quote Distant's generic description as follows :

> « Pronotum elevated, the front oblique, the posterior process moderately slender, tricarinate, convex at base, well separated from scutellum (which is quite exposed and about as long as broad), its apical area impinging on the tegminal suture and the apex about reaching the inner tegminal margin, lateral angles subprominent; ocelli almost as far apart from each other as from the eyes; face a little concavely declivous; legs simple; tegmina with four apical areas.
>
> » By the shape and direction of the posterior process resembling the genus *Indicopleustes* Dist., but altogether removed from the division in which that genus is located by the absence of lateral pronotal processes. »

From the above description it would appear that the genus should be recognized by the absence of suprahumerals, the shape of the posterior process, the sloping metopidium and the four apical cells of the corium.

Type *declivis* Distant.

Geographical distribution : This genus is known only from two African species as follows :

1. *declivis* Distant, Rhynch. Notes LVII : 496 (1915). Africa, Mashonaland.
2. *fenestratus* Gerstäcker, Deck. Reis. Ost. Afr. II : 429 (1873). German East Africa.

268. Genus TIBERIANUS Distant

Tiberianus Distant, Ann. Mag. Nat. Hist. XVI : 493 (1915).

Characters : Near the preceding genus but differing particularly in the strongly tricarinate metopidium. Head subquadrate, broader than high; base weakly arcuate; eyes ovate; ocelli small, inconspicuous, about equidistant from each other and from the eyes and situated above a line drawn

through centers of eyes; inferior margins of genæ rounded; clypeus extending a little below inferior margins of genæ. Pronotum convex, gibbous, somewhat flattened in front; metopidium vertical, as high as broad; humeral angles strong and triangular; no suprahumeral horns; median carina strongly percurrent; a strong lateral carina on each side of metopidium and sides of pronotum; posterior process heavy, nearly straight, tectiform, only slightly elevated above scutellum, impinging on tegmina, tip acute and reaching a little beyond internal angles of tegmina; scutellum well exposed on each side. Tegmina wrinkled hyaline; basal and costal areas strongly coriaceous and punctate; veins strong; four apical and two discoidal cells; apical limbus broad. Legs robust; hind tarsi longest.

Type *typicus* Distant.

Geographical distribution : This is an African genus which is apparently rare, as representatives are seldom seen in collections. Two species have been described.

1. *bulbaceus* Distant, Ann. Mag. Nat. Hist. XVI : 96. 494 (1915). — Africa, Cape Colony, Stellenbosch.
2. *typicus* Distant, Ann. Mag. Nat. Hist. XVI : 96. 494 (1915). — **Pl. 14, fig. 237.** — Africa, South East Rhodesia, Umtali.

GENERA OF THE TRIBE UROXIPHINI GODING

- I. *Posterior process touching scutellum and tegmina*
  - A. *Sides of scutellum visible*
    - 1. *Apical veins of tegmina straight*
      - a. *Posterior process slender and acuminate*
        - b. *Dorsum straight from base to apex* . . . . Uroxiphus Amyot and Serville.
        - bb. *Dorsum strongly decurved.* . . . . Dingkana Goding.
      - aa. *Posterior process broad and thick*
        - b. *Pronotum without anterior lobes* . . . . Terentius Stål.
        - bb. *Pronotum with two anterior lobes* . . . . Insitoroides Funkhouser.
    - 2. *Apical veins of tegmina strongly curved* . . . . Pogontypus Distant.
  - B. *Scutellum entirely concealed*
    - 1. *Pronotum without central dorsal elevation* . . . . Cryptaspidia Stål.
    - 2. *Pronotum with central dorsal elevation* . . . . Mesocentrus Funkhouser.
- II. *Posterior process not touching scutellum and tegmina*
  - A. *Posterior process arising from high above base of pronotum* . . . Demanga Distant.
  - B. *Posterior process arising from near base of pronotum*
    - 1. *Base of head strongly tuberculate.* . . . . Awania Distant.
    - 2. *Base of head not tuberculate*
      - a. *Apical half of posterior process straight* . . . . Bocchar Jacobi.
      - aa. *Apical half of posterior process curved upward* . . . . . Occator Distant.

269. Genus UROXIPHUS Amyot and Serville

Uroxiphus Amyot and Serville, Hémip. 549 (1843).

Characters : This genus, the type genus of its tribe, is characterized by the absence of suprahumerals, the rounded pronotum, the straight, acuminate posterior process which touches the scutellum

and tegmina, the exposed sides of the scutellum and the simple venation of the corium with straight veins showing five apical and two discoidal cells and the fact that the hind wings have four apical cells. Head subquadrate, wider than high, somewhat deflexed; base arcuate and sinuate; eyes large and ovate; ocelli small, inconspicuous, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ. Pronotum convex, gibbous, punctate; metopidium vertical, convex, about as wide as high; no suprahumeral horns; humeral angles large, heavy, blunt; median carina faintly percurrent; posterior process straight, tectiform, acuminate, touching the scutellum and the tegmina and extending to a point just beyond the internal angles of the tegmina; scutellum broadly exposed on each side (in the type species bright yellow with black tip). Tegmina broad, semi-opaque (in the type species ferruginous with yellowish markings); base narrowly coriaceous and punctate; veins strong, simple and straight; five apical and two discoidal cells; apical limbus broad. Hind wings with four apical cells. Legs simple, robust and more or less pilose; hind tarsi longest.

Type *maculiscutum* Amyot and Serville.

Geographical distribution : Two species, both from Africa, are the only known representatives of the genus.

1. *maculiscutum* Amyot and Serville, Hémip. 550 (1843). — **Pl. 14, fig. 238.** — Africa, Senegal.
2. *simplex* Walker, Ins. Saund. 78 (1858). — South Africa, Cape of Good Hope.

270. Genus DINGKANA Goding

Dingkana Goding, Mon. Aus. Memb. 9 (1903).

Characters : Near the preceding genus and closely resembling it in general facies but with an entirely different geographical distribution and distinguished by the much longer and strongly decurved posterior process and the presence of three discoidal cells in the corium. Head subquadrate, strongly punctate, twice as broad as high; base feebly arcuate and strongly sinuate; eyes ovate; ocelli large, conspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ sloping and sinuate; clypeus broad, extending for half its length below inferior margins of genæ, tip pointed. Pronotum convex, gibbous, roughly punctate; metopidium sloping, about as broad as high; median carina faintly percurrent; no suprahumeral horns; humeral angles strong, triangular and pointed; posterior process long, slender, tectiform, strongly decurved, tip acuminate and reaching to the end of the abdomen and nearly to the tips of the tegmina; scutellum well exposed on each side. Tegmina subhyaline, venacious; base coriaceous and punctate; veins strong, simple and nearly straight, five apical and three discoidal cells; apical limbus broad. Hind wings with four apical cells. Legs simple, long and slender; hind tarsi longest.

Type *borealis* Goding.

Geographical distribution : This genus is known only from the type species described from Australia but these insects must be quite abundant as they are well represented in most collections from the Australian region.

1. *borealis* Goding, Mon. Aus. Memb. 9 (1903). — **Pl. 14, fig. 239.** — Australia, Queensland, Cairns, New Zealand, Tasmania, New Guinea.

271. GENUS TERENTIUS STÅL

Terentius Stål, Bid. Memb. Kan. 286 (1869).

Characters: A well-known and distinct Australasian genus characterized by the convex pronotum with no suprahumerals or dorsal lobes, a long heavy posterior process which impinges on the scutellum and tegmina, and a trilobed clypeus. Head subquadrate, twice as wide as long; base broadly sinuate; eyes large, globular and protruding; ocelli small, farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ nearly horizontal and slightly flanged; clypeus broad, trilobed, extending for half its length below inferior margins of genæ, tip rounded. Pronotum low, convex, unarmed; metopidium sloping, broader than high; median carina obsolete or only faintly percurrent; no suprahumeral horns; humeral angles robust, triangular and blunt; posterior process long, tectiform, impinging on scutellum and tegmina, tip acuminate and reaching as far as the abdomen and to a point about half-way between the internal angles and the tips of the tegmina; scutellum narrowly exposed on each side. Tegmina long, subhyaline, often mottled, sometimes semiopaque; basal and costal areas coriaceous and punctate; five apical and two discoidal cells; apical limbus broad. Legs long and robust; hind tarsi longest.

Type *convexus* Stål.

Geographical distribution: This genus is limited to the Australian and Archipelagic Regions with the following described species:

1. *conterminus* Walker, Journ. Linn. Soc. Zool. I: 163. 118 (1857). — East Indies, Aru.
   curtulus Walker, Journ. Linn. Soc. Zool. X: 190 (1868).
2. *convexus* Stål, Bid. Memb. Kan. 286. 1 (1869). — Australia, Queensland, Rockhampton, Brisbane, Cairns, New South Wales, Tweed River, South Australia.
3. *niger* Funkhouser, Rev. Suisse de Zool. XLIII: 2. 194 (1936). — New Guinea, Bougainville.
4. *nubifascia* Walker, Journ. Linn. Soc. Zool. X: 191 (1868). — New Guinea.
5. *punctatissimus* Stål, Bid. Memb. Kan. 286. 2 (1869). — New Guinea, Batchian, Dorey.
   spissus Walker MS (*fide* Distant 1915).
   pictipennis Walker, MS. (*fide ibid.*).
6. *reductus* Walker, Journ. Linn. Soc. Zool. X: 190 (1868). — New Guinea.
7. *retractus* Walker, Journ. Linn. Soc. Zool. X: 190 (1868). — East Indies, Morty.
8. *rolandi* Distant, Ann. Mag. Nat. Hist. XVI: 96. 492 (1915). — **Pl. 14, fig. 240.** — North Queensland, Kuranda.

272. GENUS INSITOROIDES FUNKHOUSER

Insitoroides Funkhouser, Indian Forest Records XVII: 3 (1933).

Characters: This genus was erected to accommodate a single species represented by a unique specimen which is now in the collection of the Forest Research Institute of British India. It is a rather

Note: Goding considered *Terentius* to be synonymous with *Narnia* Walker, but we are convinced that *Narnia* belongs in the Cercopidæ and we are not recognizing it as a membracid genus.

remarkable genus and may be at once recognized by the two peculiar dorsal lobes on the pronotum. Head subtriangular and punctate; base sinuate; eyes large and globular; ocelli large, prominent, glassy, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus triangular, extending for half its length below inferior margins of genæ. Pronotum produced dorsally into two elevations, the anterior rounded and bulbous, the posterior triangular and laterally compressed; metopidium extending forward over the head; median carina percurrent; humeral angles strong and prominent; posterior process heavy, tectiform, impinging on scutellum and tegmina, tip blunt, depressed, and just reaching the internal angles of the tegmina; scutellum narrowly exposed on each side. Tegmina opaque, mottled; base coriaceous and punctate; veins strong; five apical and three discoidal cells; apical limbus narrow. Legs simple; hind trochanters unarmed; hind tarsi longest.

Type *typicus* Funkhouser.

Geographical distribution : This genus is known only from the type species from South India.

1. *typicus* Funkhouser, Ind. For. Rec. XVII : 10. 4 (1933). — **Pl. 14, fig. 241.** India, Coorg, Fraserpet.

273. Genus POGONTYPUS Distant

Pogontypus Distant, Fauna Brit. Ind. 67 (1907).

Characters : This genus is characterized particularly by the strongly upcurved veins in the apical area of the corium, a character which distinguishes it at once from any other genus of the tribe. The insects are small and inconspicuous, usually of dark colors, with an unarmed pronotum and a short, straight posterior process. Head subquadrate, wider than high; base highly arcuate and rounded; eyes large, globular and protruding; ocelli large, conspicuous, a little farther from each other than from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ rounded; clypeus extending for half its length below inferior margins of genæ, tip rounded and pilose. Pronotum convex, rounded, unarmed in front; metopidium projecting slightly over the head with its basal margin strongly flanged, broader than high; median carina percurrent; humeral angles strong, triangular and sharp; posterior process straight, impinging on scutellum and tegmina, tectiform, tip acute and extending just beyond the internal angles of the tegmina; scutellum broadly exposed on each side. Tegmina broad, subhyaline or semiopaque and often mottled; veins very much upcurved in the apical region; five apical and three discoidal cells, all likely to be quite irregular in shape; apical limbus very narrow or absent. Hind wings with four apical cells. Legs simple; hind trochanters unarmed; hind tarsi longest.

Type *complicatus* Melichar.

Geographical distribution : This genus is apparently limited to the Island of Ceylon and is represented by three species.

1. *complicatus* Melichar, Hom. Cey. 125. 3 (1903). — **Pl. 14, fig. 242.** Ceylon, Negombo, Pattipola, Kandy, Yatiyantola.
2. *dissimilis* Distant, Faun. Brit. Ind. App. 173. 3380 (1916). Ceylon.
3. *horvathi* Distant, Faun. Brit. Ind. 67. 2208 (1907). Ceylon, Yatiyantola.

274. GENUS CRYPTASPIDIA STÅL

Cryptaspidia Stål, Hem. Phil. 729 (1870).

Characters : A large, important and well-known genus characterized by the smooth, rounded pronotum and the completely concealed scutellum. Head subquadrate, wider than high; base arcuate and sinuate; eyes large, globular and protruding; ocelli large, conspicuous, twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ rounded and somewhat lobate; clypeus broad, extending for one-fourth its length below inferior margins of genæ, tip broadly rounded. Pronotum low, somewhat flattened, unarmed; metopidium sloping, twice as broad as high; median carina obsolete; no suprahumeral horns; humeral angles strong, triangular and pointed ; posterior process heavy, nearly straight, tectiform, impinging on tegmina, tip acute and just reaching the internal angles of the tegmina; scutellum entirely concealed. Tegmina hyaline or subhyaline, generally more or less mottled; basal and costal areas broadly coriaceous and punctate; veins weak; five apical and two discoidal cells; tip rounded; apical limbus broad. Legs simple; hind tarsi longest.

Type *pubera* Stål.

Geographical distribution : The center of distribution of *Cryptaspidia* seems to be the Philippine Islands from which practically all of the species have been described.

1. ***auriculata*** Funkhouser, Phil. Journ. Sci. XL : 114 (1929).	Philippines, Luzon, Laguna, Ubi.
2. ***elevata*** Funkhouser, Phil. Journ. Sci. XV : 1. 26 (1919).	Philippines, Luzon, Benguet, Baguio.
3. ***fasciata*** Funkhouser, Ann. Ent. Soc. Amer. XXIX : 2. 248 (1936).	India, Almora, Beranag.
4. ***impressa*** Stål, Hem. Phil. 730. 3 (1870).	Philippines, Laguna, Los Banos.
5. ***longa*** Funkhouser, Phil. Journ. Sci. XV : 1. 27 (1919).	Philippines, Luzon, Benguet, Baguio.
6. ***lustra*** Funkhouser, Phil. Journ. Sci. XL : 114 (1929).	Philippines, Luzon, Ripang.
7. ***magna*** Funkhouser, Journ. F.M.S. Mus. XIII : 254 (1927).	Malaya, Selangor.
8. ***minuta*** Funkhouser, Phil. Journ. Sci. XXXIII : 118 (1927).	Philippines, Palawan.
9. ***nigra*** Funkhouser, Notes Phil. Memb. 36 (1918).	Philippines, Luzon, Tayabas, Mt. Banahao.
10. ***obtusiceps*** Stål, Hem. Phil. 730. 4 (1870).	Philippines, Mindanao, Davao.
11. ***pilosa*** Funkhouser, Phil. Journ. Sci. XVIII : 6. 686 (1921).	Philippines, Basilan.
12. ***pubera*** Stål, Hem. Phil. 729. 1 (1870).	Philippines, Luzon, Los Banos, Mt. Maquiling.
13. ***tagalica*** Stål, Hem. Phil. 729. 2 (1870). — **Pl. 14, fig. 243.**	Philippines, Panay, Antique, Culasi, Basilan, Luzon, Los Banos, Mt. Maquiling.
14. ***trifoliata*** Funkhouser, Journ. N.Y. Ent. Soc. XXII : 3. 235 (1914).	Philippines, Mt. Maquiling, Luzon, Baguio.

275. Genus MESOCENTRUS Funkhouser

Mesocentrus Funkhouser. Phil. Journ. Sci. XVIII : 681 (1921).

Characters : A single specimen, collected by the late C.F. Baker of Los Banos, Philippine Islands, and deposited in his collection, furnished the type for this genus which is represented only by the one species. The genus is unique in showing a pyramidal dorsal crest which immediately distinguishes it from all other genera of the tribe. Head subquadrate, broader than long, roughly sculptured; base strongly sinuate; eyes globular; ocelli small, pearly, inconspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ curved, edges produced forward in a slight flange; clypeus broad, extending for half its length below inferior margins of genæ, tip semicircular. Pronotum elevated into a single, pyramidal, laterally flattened, subtriangular dorsal crest, without branches or extensions of any kind; metopidium sloping, strongly convex, broader than high; median carina percurrent, only faintly indicated on metopidium but very sharp on posterior process; no suprahumeral horns; humeral angles broad, heavy and blunt; posterior process heavy, slightly curved, impinging on tegmina, the tip bearing a sharp, narrow, carinate projection or keel on the undersurface, tip just reaching the internal angles of the tegmina; scutellum present but entirely concealed by the sides of the pronotum. Tegmina subhyaline; basal and costal areas coriaceous and punctate; veins prominent and strongly pilose; five apical and three discoidal cells; apical limbus broad and wrinkled. Hind wings with four apical cells. Legs simple and strongly pilose; hind trochanters unarmed; hind tarsi longest.

Type *pyramidatus* Funkhouser.

Geographical distribution : This genus is known only from the type species from the Philippine Islands.

1. *pyramidatus* Funkhouser, Phil. Journ. Sci. XVIII : 6. 681 (1921). — Pl. 14, fig. 244. Philippines, Mindanao, Surigao.

276. Genus DEMANGA Distant

Demanga Distant, Faun. Brit. Ind. 69 (1907).

Characters : This genus, except for the absence of suprahumeral horns bears a strong superficial resemblance to the genus *Telingana* Distant, but of course the absence of suprahumerals places it in an entirely different tribe. It differs from the other genera of the tribe Uroxiphini in having the posterior process not touching the scutellum or tegmina and arising high above the base of the pronotum. Head subquadrate, strongly deflexed, twice as broad as high; base nearly straight; eyes small and globular; ocelli large, prominent, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ nearly horizontal and slightly curved; clypeus long, narrow, extending for more than half its length below inferior margins of genæ, tip feebly bifurcate. Pronotum convex, rounded, unarmed; metopidium vertical, broader than high; median carina strongly percurrent; no suprahumeral horns; humeral angles strong, conical and sharp; posterior process arising high on the pronotum above the scutellum, tricarinate, heavy, gradually curving downward so that the tip almost touches the tegmina, tip acuminate and reaching just beyond the internal angles of the tegmina, about to the tip of the abdomen; scutellum entirely exposed, as broad as long,

tip biangulate. Tegmina entirely free, subhyaline; base narrowly coriaceous and punctate; veins strong; five apical and two discoidal cells; apical limbus well developed. Hind wings with four apical cells. Legs heavy and robust; femora cylindrical; tibiæ somewhat flattened; all tarsi about equal in length.

Type *sooknana* Distant.

Geographical distribution : Two species have been described by Distant for this genus, one from Africa and the other from Asia.

1. *deflectens* Distant, Ann. Mag. Nat. Hist. XVI : 96. 494 (1915). — British East Africa, Ngare Narok, Kenya, German East Africa, Ruanda.
2. *sooknana* Distant, Faun. Brit. Ind. 69. 2211 (1907). — **Pl. 14, fig. 245.** — British India, Sookna.

277. Genus AWANIA Distant

Awania Distant, Trans. Ent. Soc. Lond. III : 518 (1914).

Characters : Near the preceding genus but with the posterior process much lower and extending just above the scutellum and tegmina and distinguished particularly by the large tubercles on the base of the head. Head subquadrate, about as high as broad, roughly sculptured; base highly arcuate and strongly sinuate and bearing a large, heavy tubercle on each side of the median line; eyes comparatively small and flattened; ocelli large, conspicuous, a little farther from each other than from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and sublobate; clypeus triangular, extending for two-thirds its length below inferior margins of genæ, tip pointed. Pronotum gibbous, convex and unarmed; metopidium sloping, broader than high, distinctly flanged outward at the base; median carina strongly percurrent, no suprahumeral horns; humeral angles very large, heavy, subconical and blunt; posterior process robust, slightly curved, tricarinate, tectiform, arising from the top of the pronotum and extending backward just above the scutellum and tegmina but not touching either, tip acuminate and reaching just beyond the internal angles of the tegmina; scutellum entirely exposed, about as broad as long, subtriangular, usually densely pilose, tip bifurcate. Tegmina broad, smoky-hyaline or translucent; base broadly coriaceous and punctate; veins very heavy; five apical and two discoidal cells: apical limbus broad. Legs long and robust; femora cylindrical; tibiæ somewhat flattened in the middle and ridged at the edges; all tarsi about equal in length.

Type *typica* Distant.

Geographical distribution : This is an African genus represented by two species.

1. *typica* Distant, Trans. Ent. Soc. Lond. III : 518 (1914). — Africa, Lagos, Oni.
2. *vicina* Goding, Journ. N.Y. Ent. Soc. XXXVIII : 90 (1930). — **Pl. 14, fig. 246.** — West Africa, French Congo, Gombari.

278. Genus BOCCHAR Jacobi

Bocchar Jacobi, Kilimand. Exp. Sjöst. 120 (1910).
Melicharella Goding, Journ. N. Y. Ent. Soc. XXXVIII : 40 (1910).

Characters : This genus is characterized by the absence of suprahumerals, the straight posterior process elevated slightly above the scutellum and tegmina, and the absence of tubercles at

the base of the head. Head subquadrate, wider than long, not tuberculate; base lightly arcuate and weakly sinuate, smooth; eyes large and ovate; ocelli large, prominent, equidistant from each other and from the eyes and situated about on a line drawn through centers of eyes; inferior margins of genæ sloping and rounded; clypeus much deflexed, extending for two-thirds its length below inferior margins of genæ, weakly trilobed with the median lobe much the largest, tip pointed. Pronotum low and convex, unarmed; metopidium sloping, broader than high; median carina percurrent; no suprahumeral horns; humeral angles heavy, broad and blunt; posterior process straight, tricarinate, tectiform, arising from upper posterior margin of pronotum and extending backward close to scutellum and tegmina but not touching either, tip acuminate and reaching to the internal angles of the tegmina; scutellum entirely exposed, triangular, hirsute, broader than long, tip broadly bifurcate. Tegmina long, narrow and subhyaline; base narrowly coriaceous and punctate; veins very heavy; five apical and two discoidal cells; apical limbus well developed. Legs short and stout; hind tarsi longest.

Type *montanus* Jacobi.

Geographical distribution : *Bocchar* is an African and Asiatic genus with a rather wide distribution as indicated by the following species :

1. *bigibbosus* Schmidt, Stet. Ent. Zeit. LXXII : 276. 2 (1911). — Africa, Buea, Mt. Kamerun.
2. *incultus* Melichar, Hom. Ceylon 124. 1 (1903). — Ceylon, Pattipola.
3. *montanus* Jacobi, Kil. Exp. 120 (1910). — **Pl. 14, fig. 247.** — East Africa, Uganda, Mutandi, Kigesi, Nairobi.
4. *occidentalis* Schmidt, Stet. Ent. Zeit. LXXII : 275. 1 (1911). — Africa, Portuguese Guinea, Bolama, Rio Cassini.

279. Genus OCCATOR Distant

Occator Distant, Faun. Brit. Ind. App. 174 (1916).

Characters : If this genus is to be separated from the preceding genus, it must be done solely on the basis of the upturned end of the posterior process, a very dangerous character on which to establish a genus, since such a character might so easily represent a mutilation or deformity, conditions which are very commonly seen in the family particularly in the posterior process. Every other character which Distant gives for the genus is common to many of the genera of the tribe. It is to be noted, also, that the genus is established on a single species and, so far as is known, on a unique type specimen.

We have never seen the one species which represents *Occator* but are tentatively accepting the genus entirely on the authority of its author, quoting his description and reproducing his figure.

Distant's original description of the genus is as follows :

« Scutellum complete; pronotum subglobose, lateral angles only obsoletely produced, the posterior process moderately slender, well separated from the scutellum, the apical area strongly upcurved, tricarinate, apex not passing the posterior angle of the inner tegminal margin, the central carination percurrent throughout its entire length; tibiæ not dilated; tegmina with the apical cells nearly straight; ocelli much nearer eyes than to each other; front with two tubercles near its posterior margin.

» In this enumeration allied to the genera *Machaerotypus* and *Demanga*, but distinct by the shorter and peculiarly upturned posterior pronotal process. »

Type *erectus* Distant.

Geographical distribution : This genus is known only from the type species from India.

1. *erectus* Distant, Faun. Brit. Ind. App. 174. 3383 (1916). — **Pl. 14, fig. 248.** East Himalayas, Kurseong.

GENERA OF THE TRIBE OXYRHACHISINI DISTANT

I. *Pronotum with suprahumerals or a bulbous dorsal process*
- A. *Posterior process touching or concealing scutellum*
  - 1. *Pronotum with suprahumerals*
    - a. *Hind wings with three apical cells; posterior process ampliated beneath* . . . . OXYRHACHIS Germar.
    - aa. *Hind wings with four apical cells; posterior process not ampliate beneath*
      - b. *Dorsum of posterior process binodose* . . . . GONGRONEURA Jacobi.
      - bb. *Dorsum of posterior process straight*
        - c. *Venation of tegmina normal.* . . . . XIPHISTES Stål.
        - cc. *Venation of tegmina irregular, multicellular* . . . . GODDEFROYINELLA Distant.
  - 2. *Pronotum with an erect, laterally branched swollen dorsal process* . BULBAUCHENIA Schumacher.
- B. *Posterior process high above scutellum* . . . . TAKLIWA Funkhouser.

II. *Pronotum unarmed*
- A. *Posterior process compressed and ampliated beneath; hind wings with three apical cells* . . . . OXYRHACHIDIA Melichar.
- B. *Posterior process not ampliated beneath; hind wings with four apical cells* . . . . XIPHISTOIDES Goding.

280. GENUS OXYRHACHIS GERMAR

Oxyrhachis Germar, Rev. Silb. III : 232 (1835).
Polocentrus Buckton, Mon. Memb. 253 (1903).
Ouranorthus Buckton, Trans. Linn. Soc. Lond. IX : 333 (1905).

Characters : A large, distinct, well-known, widely distributed and important genus which, as the type genus of its tribe, shows, as would be expected, the more or less foliaceous head and front tibiæ and the concealed scutellum characteristic of that tribe, and is distinguished from the other genera of the tribe by the ampliate keel on the underside of the pronotal process and the three apical cells of the hind wings. Head foliaceous, quadrate, roughly sculptured; base arcuate and strongly sinuate; eyes large, globular and protruding; ocelli very large, prominent, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ flattened, foliaceous, strongly lobate and sharply angulate; clypeus long, narrow, extending only a little below the flattened inferior lobes of the genæ, tip rounded or truncate. Pronotum gibbous and convex with strong suprahumerals and a robust posterior process; metopidium vertical, about as broad as high; median carina strongly percurrent; humeral angles heavy, subconical and blunt; suprahumeral horns varying considerably in size and shape but usually tricarinate, much longer than the distance between their bases, extending upward and outward with the tips rather blunt; posterior process long, heavy,

flattened laterally, usually upcurved at the tip, reaching beyond the internal angles of the tegmina, apical half bearing a sharp, flattened keel on the underside, often dentate below; scutellum entirely concealed. Tegmina entirely free, long, narrow, hyaline or subhyaline; base and sometimes part of the costal area coriaceous and punctate; veins strong; five apical and three or four discoidal cells; apical limbus broad. Hind wings with three apical cells. Legs stout; all three pairs of tibiæ more or less flattened and foliaceous; all tarsi about equal in length.

Type *tarandus* Fabricius.

Geographical distribution : This genus has a wide distribution over practically all of Africa and a considerable part of Asia and Oceanica.

1. *binsarus* Distant, Faun. Brit. Ind. App. 148. 3336 (1916).	India, Binsar, Kumaon.
2. *bisenti* Distant, Ann. Mag. Nat. Hist. XVI : 94. 322 (1915).	Africa, Natal, Durban, Rhodesia, Salisbury, Nyasaland, Mlanje, Dowa.
3. *caudatus* Buckton, Trans. Linn. Soc. Lond. IX : 9. 335 (1905).	Africa, Natal, Zululand.
4. *crinitus* Buckton, Mon. Memb. 247 (1903).	Ceylon, Kaits.
5. *delalandei* Fairmaire, Rev. Memb. 268. 3 (1846).	Africa, Natal, Cape of Good Hope, Rhodesia, Egypt, Mariut, Tunis, Morocco, Sicily, Syria.
6. *egyptianus* Distant, Ann. Mag. Nat. Hist. XVI : 94. 322 (1915).	Africa, Upper Egypt, North Etbai.
7. *formidabilis* Distant, Faun. Brit. Ind. App. 146. 3333 (1916).	India, Dehra Dun, Suraj Bagh, Salem, Athurkuppam.
8. *gambiæ* Fairmaire, Rev. Memb. 269. 4 (1846)	Africa, Senegal, Gambia.
9. *gibbulus* Melichar, Wien. Ent. Zeit. XXIV : 294. 52 (1905).	Africa, Dutch East Africa, Tanga, Egypt, Cairo, Basse Guiba.
10. *labatus* Buckton, Trans. Linn. Soc. Lond. IX : 9. 335 (1905).	Africa, Abyssinia.
11. *lamborni* Distant, Rhynch. Notes 19 (1916).	Africa, South Nigeria.
12. *latipes* Buckton, Mon. Memb. 253 (1903).	Africa, Natal, Durban.
13. *lefroyi* Distant, Faun. Brit. Ind. App. 147. 3335 (1916).	India, Pusa.
14. *mangiferana* Distant, Faun. Brit. Ind. App. 147. 3334 (1916).	India, Dehra Dun, Suraj Bagh.
15. *nigropictus* Distant, Rhynch. Notes 20 (1916).	Africa, British East Africa, Nzoia River.
16. *palus* Buckton, Trans. Linn. Soc. Lond. IX : 333 (1905).	India, Bangalore, Coimbatore.
17. *pandatus* Distant, Rhynch. Notes 20 (1916).	Africa. Cameroons.
18. *rufescens* Walker, List Hom. B.M. 506. 7 (1851). *rudis* Walker, List Hom. B. M. 509 13 (1851).	India, North Bengal, Calcutta, South India, Mysore, East Bengal, Rajshaki, Satara, Medha, Yenua.
19. *subjecta* Walker, List Hom. B. M. 504. 2 (1851).	East Indies, Sumatra, Java.
20. *subserrata* Walker, List Hom. B. M. 506 (1851).	Africa, Angola, Belgian Congo, Rhodesia, Victoria Falls.

21. *tarandus* Fabricius, Ent. Syst. Suppl. 514 (1798). — **Pl. 14, fig. 249.** Africa, Senegal, Egypt, Gold Coast, Cameroons, Abyssinia, Arabia, India, Bengal, Calcutta, Madras, Chatrapur, Ganganu, Mysore, Bangalore, Karachi, East Bengal, Rajshaki, Ceylon.
rufus Buckton, Mon. Memb. 254 (1903).

22. *tenebrosus* Walker, List Hom. B. M. 623. 58 (1851). Africa, Sierra Leone, Ivory Coast, Gold Coast.

23. *tuberculatus* Walker, Ins. Saund. 109 (1858). Africa, Cape of Good Hope, Natal.

24. *uncatus* Melichar, Hom. Ceylon 108. 2 (1903). Ceylon, Peradeniya, Trichinopoly.
nectaris Buckton, Mon. Memb. 246 (1903).

25. *versicolor* Distant, Ann. Mag. Nat. Hist. XVI : 94. 322 (1915). Arabia, Aden.

26. *vetusta* Walker, List Hom. B. M. 507. 8 (1851). Africa, Natal.

27. *yerburyi* Distant, Rhynch. Notes 21 (1916). Aden.

281. Genus GONGRONEURA Jacobi

Gongroneura Jacobi, Kilimand. Exp. 120 (1910).
Pedalion (preoccupied) Buckton, Mon. Memb. 251 (1903).

Characters : Near the preceding genus but differing in having four apical cells in the hind wing and in having a binodose posterior process which does not show a strong keel on the under side. Head quadrate, foliaceous, about as broad as high; base arcuate, sinuate, and feebly bituberculate; eyes subtriangular; ocelli large, conspicuous, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ flattened, foliaceous, strongly lobed and sharply angulate; clypeus broad, foliaceous, not extending below inferior margins of genæ, tip truncate. Pronotum gibbous, convex, roughly sculptured, with robust suprahumerals and a binodose posterior process; metopidium vertical, about as wide as high; median carina strongly percurrent; humeral angles heavy, triangular and blunt; suprahumeral horns varying in size and structure but always heavy, rough, more or less swollen, extending outward and upward, much longer than the distance between their bases, often with the tips bent outward; posterior process heavy, tectiform, bearing two flattened elevations on the upper surface and often dentate below, tip suddenly acute behind the posterior node and reaching beyond the internal angles of the tegmina; scutellum completely concealed. Tegmina entirely free, narrow, subhyaline or semiopaque, often mottled; base broadly coriaceous and punctate; veins strong and raised; five apical and four discoidal cells; apical limbus broad and wrinkled. Hind wings with four apical cells. Legs short and stout; femora cylindrical; all three pairs of tibiæ broadly foliaceous and distinctly spined; hind tarsi longest.

Type *fasciata* Buckton.

Geographical distribution : This is an African genus with a rather extended range on that continent.

1. *brevicornis* Jacobi, Kil. Exp. XII : 7. 120 (1910). — **Pl. 14, fig. 250.** Africa, Kilimandjaro, Kibonoto, Niederung.

2. *carinata* Funkhouser, Ann. Mus. Acad. U. S. S. R. XXVIII : 147 (1927). — Africa, Victoria Nyanza.

3. *confusa* Distant, Rhynch. Notes 23 (1916). — Africa, Usambara.
delalandei (error) Jacobi, Kil. Exp. XII : 119 (1910).

4. *fasciata* Buckton, Mon. Memb. 253 (1903). — South Africa, Cape of Good Hope, Capetown.
punctipennis Buckton, Mon. Memb. 253 (1903).

5. *ornata* Buckton, Mon. Memb. 252 (1903). — West Africa, Cameroons.

6. *triste* Buckton, Mon. Memb. 251 (1903). — West Africa, Cameroons.

282. Genus XIPHISTES Stål

Xiphistes Stål, Hem. Afr. IV : 85 (1866).
Neoxiphistes Distant, Trans. Ent. Soc. Lond. III : 515 (1913).

Characters : This genus is closely related to *Oxyrhachis* but has four apical cells in the hind wings and lacks the ampliated inferior keel on the posterior process. It differs from *Gongroneura* in having no elevations of the posterior process. Head subquadrate, a little longer than wide, roughly sculptured; base arcuate and sinuate with a slight suggestion of a tubercle on each side of the median line; eyes small, ovate, and more or less flattened; ocelli large, conspicuous, protruding, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ produced downward in sharp-cornered quadrangular foliaceous lobes; clypeus long, narrow, not extending below the inferior lobes of the genæ, tip rounded or truncate. Pronotum convex, gibbous, bearing stout suprahumerals and a long posterior process; metopidium vertical, a little wider than high; median carina strongly percurrent; humeral angles short, heavy and blunt; suprahumeral horns varying in size and structure but usually short and stout, extending upward and forward and very slightly outward, tricarinate, somewhat swollen, tips blunt; posterior process long, slender, tectiform, nearly straight, covering the scutellum and impinging on the tegmina, tip blunt and reaching beyond the abdomen and almost to the tips of the tegmina; scutellum entirely concealed. Mesothorax and metathorax armed with strong lateral teeth. Tegmina subhyaline or semiopaque, entirely free; base coriaceous and punctate; veins strong and raised; five apical and four discoidal cells; apical limbus broad. Hind wings with four apical cells. Legs short and stout; femora cylindrical; all three pairs of tibiæ flattened and foliaceous; hind tarsi longest.

Type *furcicornis* Germar.

Geographical distribution : This is primarily an African genus but questionable species have been reported as far east as Malaya and as far south as Australia.

1. *attenuata* Distant, Ann. Mag. Nat. Hist. XVI : 94. 324 (1915). — Africa, Mashonaland. Lesapi River.

2. *australasiæ* Distant, Rhynch. Notes 21 (1916). — South Australia.

3. *concolor* Buckton, Mon. Memb. 224 (1903). — Cape of Good Hope, Transvaal.

4. *crassicornis* Distant, Ann. Mag. Nat. Hist. XVI : 96. 323 (1915). — Africa, Mashonaland, Lesapi River.

5. *crassus* Distant, Rhynch. Notes 313 (1916). — Africa, Mashonaland, Rhodesia, Salisbury, Transvaal, Pretoria.

6. *exigua* Buckton, Mon. Memb. 232 (1903). — Africa, Natal, Zululand.
7. *furcicornis* Germar, Rev. Silb. III: 232. 1 (1835).— **Pl. 14, fig. 251.** — South Africa, Cape of Good Hope.
   fuscicornis Germar, Rev. Silb. III : 232. 2 (1835).
   tarandus (error) Buckton, Mon. Memb. Pl. 49, fig. 3 (1903).
8. *inermis* Jacobi, Kil. Exp. XII : 7. 119 (1910). — Africa, Nyasaland, Zomba.
9. *lagoensis* Distant, Trans. Ent. Soc. Lond. III : 515 (1913). — West Africa, Lagos, Oni.
10. *longicornis* Distant, Ins. Trans. 212 (1908). — Africa, Transvaal.
11. *orientalis* Funkhouser, Malayan Memb. 1. 1 (1918). — Malaya, Singapore.
12. *sulcicornis* Thunberg, Hem. Rostr. I : 2 (1822). — Africa, Natal, Transvaal.
13. *tangenensis* Buckton, Mon. Memb. 225 (1903). — South Africa, Tanga.
14. *unicolor* Walker, List Hom. B. M. 509. 12 (1851). — East Indies.

283. Genus GODDEFROYINELLA Distant

Goddefroyinella Distant, Rhynch. Notes 22 (1916).

Characters : The geographical distribution of this genus would indicate that it is probably distinct from *Xiphistes* to which it is undoubtedly very closely related, but the only character which could be considered as of generic value would be the reticulated apical area of the tegmina.

Distant limits his generic description to one sentence as follows :

« Allied to *Xiphistes*, but differing in the more robust and regularly convex pronotal process and the reticulated tegminal area. »

The original description of the type species would fit, in a general way, almost any species of *Xiphistes* except for the irregular wing venation and gives no assistance in the formulation of a more complete generic description.

The single species of the genus has not been mentioned in the literature of the family since its original description and so far as we know has never been recognized. Neither has any other species been added to the genus. We have not seen the type species and can therefore do no more than to recognize the genus on the basis of the multicellular corium and place it next to *Xiphistes* in our list.

Type *indicans* Distant.

Geographical distribution : This genus is known only from the type species from Australia.

1. *indicans* Distant, Rhynch. Notes 31 (1916). — Queensland, Gayndah.

284. Genus BULBAUCHENIA Schumacher

Bulbauchenia Schumacher, H. Sant. Form. 115 (1915).
Clonauchenia Funkhouser, Phil. Journ. Sci. XVIII : 6. 679 (1921).
Bolbauchenia (error) Goding, Old World Memb. 312 (1934).

Characters : This is a very remarkable and apparently a very rare genus, characterized by a greatly swollen, laterally branched anterior dorsal process and a posterior process which is elevated to form a high, flattened, foliaceous plate. Head foliaceous, triangular, longer than wide, roughly sculptured; base irregularly rounded; eyes globular; ocelli large, prominent, much farther from each other than from the eyes and situated well above an imaginary line drawn through centers of eyes; margins of

genæ sinuate and produced; clypeus longer than wide, strongly trilobed, extending for two-thirds its length below inferior margins of genæ, tip trilobed and pilose. Pronotum with a swollen, bulbous anterior elevation and an elevated, plate-like posterior process; metopidium convex, much higher than wide; median carina irregularly percurrent; humeral angles heavy, subconical and blunt; anterior pronotal process rising as a column above the head and spreading out at the tip to form a swollen transverse expansion, this expansion roughly trilobed, the central lobe more or less globular, the lateral lobes projecting outward to form heavy, swollen, nodular horns with ends suddenly acute; posterior process elevated to form a high, laterally compressed plate which is roughly triangular in shape, the anterior margin concave, the posterior margin twice as long as the anterior and convex, the dorsal point sharp and almost reaching the posterior margin of the middle lobe of the anterior process, caudal tip extending beyond internal angles of tegmina; scutellum entirely concealed by the pronotum; sides of lateral anterior process and of the posterior process bearing reticulated raised carinæ; lower margins of mesothorax and metathorax extended to form rough tooth-like projections. Tegmina narrow, largely coriaceous and almost entirely opaque; basal and costal areas leathery and punctate; venation very irregular but showing five apical and four or five discoidal cells; tip diagonally truncate, apices pointed; apical limbus narrow. Hind wings with four apical cells. Legs moderately foliaceous and flattened, densely and finely spined; hind tarsi longest.

Type *tiawanensis* Schumacher.

Geographical distribution : This is an oriental genus represented by only two species, one from Formosa and the other from the Philippines.

1. *mirabilis* Funkhouser, Phil. Journ. Sci. XVIII : 6. 680 (1921). — **Pl. 14, fig. 252.**	Philippines, Mindanao, Surigao.
2. *tiawanensis* Schumacher, Sant. Form. 115 (1915).	Formosa.

285. Genus TAKLIWA Funkhouser

Takliwa Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 430 (1935).

Characters : A single specimen in the collection of the Imperial Institute in London furnished the type for this curious monotypic genus. It is characterized by the swollen, laterally flattened foliaceous pronotum which suggests the South American genus *Lycoderes*, and by the entirely exposed scutellum. Head subquadrate, wider than long; base strongly arcuate; eyes small but extending outward half as far as the humeral angles; ocelli large, conspicuous, equidistant from each other and from the eyes and situated well above a line drawn through centers of eyes; inferior margins of genæ foliaceous and lobate; clypeus extending for half its length below inferior margins of genæ, tip pointed. Pronotum highly arched, swollen, foliaceous, laterally flattened, roughly sculptured and with stout suprahumerals; metopidium convex, slightly sloping, about as wide as high; median carina strongly percurrent; humeral angles large, triangular and blunt; suprahumeral horns large, swollen, twice as long as the distance between their bases, extending outward with the tips curved downward, somewhat compressed dorso-ventrally, tips blunt; posterior process rising from behind horns, very thick and heavy at base, rising in a high arch over the scutellum, then curving downward to touch tegmina, then sinuate with tip depressed and extending almost to tips of tegmina; scutellum entirely exposed, subtriangular, swollen, about as long as wide; sides of pronotum rough. Tegmina broad, semiopaque; base narrowly coriaceous and punctate; veins indistinct; five apical and four discoidal cells; tip pointed; apical limbus

narrow. Legs short and stout; femora somewhat flattened; first and second pairs of tibiæ expanded and foliaceous; hind tarsi longest.

Type *carteri* Funkhouser.

Geographical distribution : This genus is known only from the type species from Africa.

1. *carteri* Funkhouser, Journ. N. Y. Ent. Soc. XLIII : 4. 430 (1935). — Africa, Gold Coast.
Pl. 14, fig. 253.

286. Genus OXYRHACHIDIA Melichar

Oxyrhachidia Melichar, Hom. Ceylon 118 (1903).

Characters : This genus differs from *Oxyrhachis* in practically no respects except the absence of suprahumerals. We have already expressed our doubt, in connection with other genera, as to the value of the suprahumeral horns as a generic character, since in some genera and even, in rare cases, within a species, we find both armed and unarmed forms, and between certain closely related genera we find the gradation from the armed to the unarmed species so gradual that it is impossible to draw a definite dividing line. However, if the absence of suprahumerals in *Oxyrhachidia* proves to be a constant character (at present only one species has been described in the genus) we have no reason for refusing to accept the genus as valid. Like the forms of *Oxyrhachis*, the type species of *Oxyrhachidia* shows the compressed ampliated inferior keel on the posterior process and the three apical cells in the hind wings. Head subquadrate, a little wider than long, semifoliaceous, roughly sculptured; base strongly arcuate and sinuate and weakly bituberculate; eyes small and flattened; ocelli large, conspicuous, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; inferior margins of genæ extended downward in square, flat, sharply angulate foliaceous lobes; clypeus longer than wide, extending only slightly below inferior margins of genæ, tip rounded. Pronotum convex, gibbous, without suprahumerals; metopidium sloping, wider than high, flattened above; median carina strongly percurrent; humeral angles heavy, subconical and blunt; no suprahumeral horns; posterior process heavy, tricarinate, tectiform, slightly concave in the middle and upturned at the apex, a flattened keel on the undersurface of the apical half, tip blunt and extending just beyond the internal angles of the tegmina; scutellum entirely concealed by the pronotum. Tegmina broad, hyaline; base coriaceous and punctate; veins very strong and raised; five apical and four discoidal cells; tip rounded; apical limbus very narrow. Legs short and heavy; femora roughly cylindrical; all three pairs of tibiæ broadly flattened and foliaceous; hind tarsi longest.

Type *inermis* Stål.

Geographical distribution : *Oxyrhachidia* is known only from Stål's species from Ceylon which was designated as the type of the genus.

1. *inermis* Stål, Bid. Memb. Kan. 283. 1 (1869). — **Pl. 14, fig. 254.** Ceylon, Peradeniya.

287. Genus XIPHISTOIDES Goding

Xiphistoides Goding, Ann. Ent. Soc. Amer. XXIV : 936 (1931).
Xiphidia (preoccupied) Goding, Journ. N. Y. Ent. Soc. XXXVIII : 92 (1930).

Characters : This genus differs from *Xiphistes* in the same way in which *Oxyrhachidia* differs from *Oxyrhachis*, namely in the absence of suprahumerals, and the same comments which we have

previously made regarding the questionable value of this character again applies. *Xiphistoides* has the same important characters as *Xiphistes* in the matters of the four apical cells of the hind wings and the absence of the ampliated inferior keel of the posterior process. Head subquadrate, longer than wide, roughly sculptured; base highly arcuate, strongly sinuate and feebly bituberculate; eyes ovate, somewhat flattened laterally; ocelli large, prominent, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; inferior margins of genæ lobate, quadrangular, foliaceous, corners sharply angulate; clypeus longer than broad, extending only a little below the inferior lobes of the genæ, tip rounded and pilose. Pronotum convex, gibbous, unarmed in front, roughly sculptured; metopidium sloping, broader than high; median carina roughly and irregularly percurrent; humeral angles heavy and blunt; no suprahumeral horns; posterior process straight, heavy, tricarinate, tectiform, impinging on tegmina, no expanded inferior keel, tip blunt and reaching just beyond the internal angles of the tegmina; scutellum entirely concealed. Tegmina broad and hyaline; base coriaceous and punctate; veins strong; five apical and four discoidal cells; tip rounded; apical limbus broad. Legs short and stout; all three pairs of tibiæ broadly flattened and foliaceous; hind tarsi longest.

Type *carinatus* Funkhouser.

Geographical distribution : Two species, both from Africa, have been assigned to this genus.

1. *carinatus* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 47 (1927). — **Pl. 14, fig. 255.**	Africa, Victoria Nyanza, Buddu Forest, Itara.
2. *inermis* Jacobi, Kil. Exp. XII : 7. 119 (1910).	Africa, Nyasaland, Zomba.

GENERA OF THE TRIBE DARTHULINI TRIBUS NOVUS

I. *Pronotum unarmed*
- A. *Apex of abdomen extended in a long spine* . . . . DARTHULA Kirkaldy.
- B. *Apex of abdomen normal* . . . . COLOBORRHIS Germar.

II. *Pronotum with suprahumeral horns* . . . . HEMICENTRUS Melichar.

288. GENUS DARTHULA KIRKALDY

Darthula Kirkaldy, Ent. XXXIII : 242 (1900).
Urophora (preoccupied) Gray, Anim. Kingd., Ins. II : 261 (1832).

Characters : Although represented by only a single species, this genus is quite remarkable and fully deserves to stand as the type genus of a small but very distinct tribe. It is characterized first of all by the absence of a posterior process but chiefly by the peculiar spine-like extension of the abdomen and the finely reticulated tegmina. The type species is a curious insect with unusual structure and coloring and is one of the largest of all of the Membracidæ. Head sublunar, twice as wide as high, distinctly curved on its horizontal axis, very roughly sculptured; base highly arcuate and much sunken

Notes : 1. The genus *Porcorhinus* Goding was described as a membracid (Goding 1903) and was placed in the group which would be represented by this tribe by the same author (Goding 1934) but China (China 1924) transferred this genus to the Jassoidea.

2. The genus *Eufroggattia* Goding was also described as a membracid (Goding 1903) but was shown by China (China 1927) to belong to the family *Pentatomidæ*.

in the middle in a deep pit below the overhanging margin of the pronotum; eyes small and globular (bright red in the type species); ocelli large, conspicuous (brilliant red in the type), twice as far removed from the eyes as from each other and situated low on the face, about on a line drawn through lower margins of eyes; inferior margins of genæ broadly rounded; clypeus three times as long as broad, extending for its entire length below the inferior margins of the genæ, tip pointed and pubescent. Pronotum convex, gibbous, entirely unarmed, elevated into a crest with a high thin keel on the median dorsal line; metopidium sloping, broader than high, extended into a flange over the head; median carina strongly percurrent, raised in a flattened plate on the pronotum; humeral angles very large, broad, triangular and blunt; no suprahumeral horns; no posterior process; scutellum entirely exposed, subtriangular, swollen at the base, about as broad as long, tip acute. Tegmina long, narrow, opaque, the entire surface reticulated by heavy raised veins which form a very large number of small, irregular cells; basal area broadly coriaceous and punctate; tip rounded; no apical limbus. Legs long, slender and simple; hind tarsi longest. Dorsal sclerite of terminal segment of abdomen extended into a long tube-like rod, cylindrical and pilose, as long or longer than the abdomen itself.

Type *hardwicki* Gray.

Geographical distribution : This is an Indian genus with the type species (which is the only species known) apparently quite common and having a wide distribution over that region.

1. *hardwicki* Gray, Griff. Ed. Anim. Kingd., Ins. II : 261 (1832). — **Pl. 14, fig. 256.** — India, Assam, Sikhim, Margherita, Khasi Hills, Naga Hills, Darjeeling, Nepal, Burma, Ruby Mines, West Yunnan, South Himalayas, Kurseong.

289. Genus COLOBORRHIS Germar

Coloborrhis Germar, Rev. Silb. IV : 73 (1836).
Euryprosopum Stål, Ofv. Vet. Akad. Forh. 267 (1853).
Bohemania Stål, Ofv. Vet. Akad. Forh. 97 (1855).

Characters : The insects of this genus, which are apparently very cercopid-like in appearance, are unknown to us but they have been recognized and described often enough to indicate that they possess distinctive characters sufficient to justify the listing of the genus as valid. The genus is certainly quite different from either of the other genera of the tribe. Germar's excellent original description of the genus as well as the descriptions given by Stål for the synonymous genera make it possible to summarize the more important generic characters as follows : Head subquadrate, wider than high, deflexed; eyes large; ocelli prominent, equidistant from each other and from the eyes; inferior margins of genæ flattened and rounded; clypeus extending below inferior margins of genæ. Pronotum convex and entirely unarmed; no suprahumeral horns; no posterior process; scutellum entirely exposed, short, subtriangular, base transversely impressed. Tegmina coriaceous with reticulated venation. Legs somewhat flattened; hind tarsi longest.

Type *corticina* Germar.

Geographical distribution : This is an African genus represented by three species.

1. *corticina* Germar, Rev. Silb. IV : 73 (1836). — Africa, Caffraria.
bohemania Buckton, Mon. Memb. 267 (1903).

2. *perspicillaris* Germar, Rev. Silb. IV : 73 (1836). — Africa.
3. *sobrina* Stål, Ofv. Vet. Akad. Forh. 97. 1 (1855). — Africa, Caffraria.
   patruelis Stål, Ofv. Vet. Akad. Forh. 98. 2 (1855).

290. Genus HEMICENTRUS Melichar

Hemicentrus Melichar, Notes Mus. Leid. 114 (1914).
Sarritor Distant, Faun. Brit. Ind. App. 182 (1916).

Characters : The presence of suprahumeral horns and the absence of a posterior process provide a combination of characters which at once distinguishes this genus not only from the other genera of the tribe but from any other genus in the subfamily. Head subquadrate, smooth, twice as broad as high; base arcuate and weakly sinuate; eyes very large, globular and protruding; ocelli large, conspicuous, equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; inferior margins of genæ sloping and weakly rounded; clypeus three times as long as wide, extending for two-thirds its length below inferior margins of genæ, tip rounded and pilose. Pronotum convex, gibbous, with strong suprahumerals but no posterior process; metopidium vertical, about as broad as high; median carina strongly percurrent; humeral angles large, subconical and sharp; suprahumeral horns varying considerably among the different species in size and structure but usually heavy, tricarinate, somewhat flattened dorso-ventrally, at least twice as long as the distance between their bases, extending outward and upward, tips blunt; no posterior process; scutellum entirely exposed, subtriangular, about as broad as long, swollen at the base, tip broadly bifurcate. Tegmina long, slender, hyaline or subhyaline, usually much wrinkled; base coriaceous and punctate; veins heavy; five apical and two discoidal cells; tip rounded; apical limbus narrow. Legs long, slender and simple; hind tarsi longest.

Type *bicornis* Melichar.

Geographical distribution : The distribution of this genus seems to be limited to the south Asiatic and Archipelagic region.

1. *aculeatus* Olivier, Enc. Meth. VII : 669 (1792). — Ceylon.
2. *attenuatus* Funkhouser, Bull. Brook. Ent. Soc. XVI : 2. 50 (1921). — China, Kiautschau.
3. *bicornis* Melichar, Notes Mus. Leid. 115 (1914). — Java, Semarang.
4. *bispinus* Stoll, Cigal. 76 (1783). — Ceylon.
5. *cornutus* Funkhouser, Ann. Mus. Acad. U.S.S.R. XXVIII : 150 (1927). — Indo China, Annam, Song Dinh.
6. *retusus* Distant, Faun. Brit. Ind. App. 182. 3397 (1916). — **Pl. 14, fig. 257.** — Lower Burma, Moulmein, Dawna Hills, Farm Caves, Java.

SUMMARY

This report recognizes 290 genera with a total of 2334 species distributed among the subfamilies and tribes as follows :

FAM. MEMBRACIDÆ

Subf. MEMBRACINÆ

Tribe MEMBRACINI

	Number of Species
Genus *Membracis* Fabricius	28
Enchophyllum Amyot and Serville	15
Enchenopa Amyot and Serville	24
Campylenchia Stål	5
Tritropidea Stål	4
	76

Tribe NOTOCERINI

Genus *Spongophorus* Fairmaire	32
Guayaquila Goding	7
Philya Walker	12
Hypsoprora Stål	12
Notocera Amyot and Serville	30
Scalmorphus Fowler	2
Multareis Goding	3
	98

Tribe BOLBONOTINI

Genus *Bolbonota* Amyot and Serville	26
Bolbonotodes Fowler	1
Erechtia Walker	34
Tylopelta Fowler	5
Leioscyta Fowler	19
Taunaya da Fonseca	1
	86

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Subf. PLATYCOTINÆ

Tribe POTNIINI

	Number of Species	
Genus *Alchisme* Kirkaldy	16	
Ochropepla Stål	7	
Aconophoroides Fowler	3	
Potnia Stål	7	
	33	

Tribe PLATYCOTINI

Genus *Platycotis* Stål	10	
Orthroplophora Fowler	1	
Stalotypa Metcalf	2	
Metcalfiella Goding	22	
Umbonia Burmeister	14	
	49	
		82

Subf. DARNINÆ

Tribe DARNINI

Genus *Darnis* Fabricius	8
Hebeticoides Fowler	3
Ochrolomia Stål	3
Hebetica Stål	4
Stictopelta Stål	23
Alobia Stål	1
Cyphotes Burmeister	2
Aspona Stål	5
Hypheus Stål	2
Atypa Laporte	3
Paradarnoides Fowler	2
Cymbomorpha Stål	9
Paragargara Goding	1
Eumela Stål	3
Iria Stål	7
Rhexia Stål	11
Smiliorhachis Fairmaire	4
Darnoides Fairmaire	7
Brachytalis Metcalf and Bruner	2
Procyrta Stål	7
	107

TRIBE ACONOPHORINI

	Number of Species	
Genus *Aconophora* Fairmaire	43	
Kronides Kirkaldy	5	
Orekthophora Funkhouser	1	
Hemiptycha Germar	1	
Nessorhinus Amyot and Serville	4	
Spinodarnoides Funkhouser	1	
	55	

TRIBE HEMIKYPTHINI

Genus *Proterpia* Stal	2	
Eualthe Stål	2	
Nassunia Stål	10	
Tomogonia Stål	4	
Bubalopa Stål	2	
Hyphinoë Stål	19	
Alcmeone Stål	9	
Ictaranthe Fowler	1	
Hemikyptha Metcalf	8	
Sundarion Kirkaldy	13	
	70	

TRIBE HETERONOTINI

Genus *Heteronotus* Laporte	23	
Heliodore Stål	1	
Omolon Walker	3	
Anchistrotus Buckton	7	
	34	
		266

Subf. TRAGOPINÆ

Genus *Tragopa* Latreille	48	
Tropidolomia Stål	5	
Stilbophora Stål	5	
Horiola Fairmaire	10	
Ceratopola Stal	2	
	70	
		70

Subf. SMILIINÆ

	Number of Species
TRIBE SMILIINI	
Genus *Smilia* Germar	3
Adippe Stål	12
Godingia Fowler	1
Telamonanthe Baker	3
Antianthe Fowler	5
Xantholobus Van Duzee	10
Evashmeadea Goding	2
Atymna Stål	8
Grandolobus Ball	1
Cyrtolobus Goding	44
Ophiderma Fairmaire	16
Polyrhyssa Stål	1
Metheisa Fowler	4
Polyglyptodes Fowler	5
Ecuadoria Goding	2
Dioclophara Kirkaldy	6
Hille Stål	9
Gelastogonia Kirkaldy	17
Heranice Stål	2
Maturna Stål	3
Membracidoidea Goding	1
	155
TRIBE CERESINI	
Genus *Ceresa* Amyot and Serville	50
Centrogonia Stål	9
Antonæ Stål	12
Ilithucia Stål	2
Xolonia Plummer	1
Cyphonia Laporte	19
Poppea Stål	17
Clepsydrius Fowler	1
Parantonæ Fowler	4
Melusina Stål	4
Stictocephala Stål	22
Stictolobus Metcalf	7
Trachytalis Fowler	2
	150
TRIBE AMASTRINI	
Genus *Amastris* Stål	16
Tynelia Stål	9
Boëthoös Kirkaldy	7
Vanduzea Goding	11
Lallemandia Funkhouser	1
Bajulata Ball	1
Hygris Stål	1
Idioderma Van Duzee	3
Erosne Stål	2
	51

Tribe POLYGLYPTINI

	Number of Species
Genus *Polyglypta* Burmeister	8
Bryantopsis Ball	1
Bilimekia Fowler	2
Entylia Germar	10
Publilia Stål	5
	26

Tribe TELAMONINI

Genus *Telamona* Fitch	35
Helonica Ball	4
Heliria Stål	13
Telonaca Ball	3
Palonica Ball	5
Thelia Amyot and Serville	3
Glossonotus Butler	5
Carynota Fitch	6
Tropidarnis Fowler	3
Archasia Stål	3
Incolea Goding	2
Mendicea Goding	1
Aphetea Fowler	5
Phormorphora Stål	4
	92

Tribe ACUTALINI

Genus *Acutalis* Fairmaire	15
Thrasymedes Kirkaldy	7
Euritea Stål	6
Micrutalis Fowler	29
	57

531

Subf. CENTROTINÆ (New World)

Tribe ABELINI

Genus *Abelus* Stål	2
Stictodepsa Stål	1
Scytodepsa Stål	3
Tropidaspis Stål	6
Nicomia Stål	6
Endoiastus Fowler	2
Mina Walker	3
Lophyraspis Stål	4
Gerridius Fowler	3
Lamproptera Germar	6
Orekthen Funkhouser	3
Melizoderes Blanchard	4
Tolania Stål	10
	53

Tribe ACUMINATINI

	Number of Species
Genus *Postanomus* Funkhouser	2
Centrodontus Goding	2
Tylocentrus Van Duzee	2
Lirania Stål	1
Flexocentrus Goding	2
Oeda Amyot and Serville	3
Lycoderes Germar	20
Stegaspis Germar	9
Glischrocentrus Fowler	1
Microcentrus Stål	9
Centruchoides Fowler	2
Bocydium Latreille	7
Stylocentrus Stål	2
Smerdalea Fowler	1
Dontonodus Funkhouser	2
	65

Tribe HEBESINI

Genus *Goniolomus* Stål	1
Boöcerus Stål	1
Spathocentrus Fowler	1
Ischnocentrus Stål	3
Campylocentrus Stål	13
Ophicentrus Fowler	1
Psilocentrus Fowler	1
Centronodus Funkhouser	2
Platycentrus Stål	5
Orthobelus Stål	5
Callicentrus Stål	7
Daimon Buckton	2
Amblycentrus Fowler	1
Centriculus Fowler	2
Brachybelus Stål	1
Brachycentrutus Metcalf and Bruner	2
Monobelus Stål	8
Quadrinaria Goding	1
Marshallella Goding	1
	58

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Subf. CENTROTINÆ (Old World)

Tribe CENTROTINI

	Number of Species
Genus *Centrotus* Fabricius	40
Tricoceps Buckton	6
Centrotusoides Distant	2
Platybelus Stål	13
Evanchon Goding	5
Amitrochates Distant	2
Barsumas Distant	1
Monocentrus Melichar	13
Maguva Melichar	7
Anchon Buckton	29
Spalirises Distant	4
Pantaleon Distant	5
Antialcidas Distant	3
Maurya Distant	8
Machærotypus Uhler	10
Tricentrus Stål	116
Tricentroides Distant	1
Eumonocentrus Schmidt	3
Crito Distant	1
	269

Tribe HYPSAUCHENINI

Genus *Hypsauchenia* Germar	8
Pyrgauchenia Breddin	12
Gigantorhabdus Schmidt	1
Hypsolyrium Schmidt	1
Pyrgonota Stål	8
Hybandoides Distant	5
Funkhouserella Schmidt	7
	42

Tribe CENTROCHARESINI

Genus *Centrochares* Stål	7
Negus Jacobi	1
Sinenodus Goding	1
	9

Tribe MICREUNINI

Genus *Micreune* Walker	4
Eutryonia Goding	4
Leptobelus Stål	7
Elaphiceps Buckton	2
	17

Tribe LEPTOCENTRINI

		Number of Species
Genus	*Leptocentrus* Stål	50
	Nilautama Distant	4
	Arimanes Distant	1
	Convector Distant	1
	Telingana Distant	18
	Acanthophyes Stål	4
	Bathoutha Distant	1
	Indicopleustes Distant	4
	Parapogon Distant	2
	Xiphopœus Stål	9
	Maarbarus Distant	2
	Aspasiana Distant	1
	Tshaka Distant	4
	Polonius Distant	1
	Dacartha Distant	2
	Imporcitor Distant	2
	Otinotus Buckton	23
	Eufrenchia Goding	7
	Cebes Distant	3
	Lubra Goding	2
	Sarantus Stål	6
	Godingella Distant	1
	Otinotoides Distant	17
	Gondopharnes Distant	1
	Ceraon Buckton	7
	Emphusis Buckton	12
	Acanthucus Stål	17
	Sertorius Stål	10
	Centruchus Stål	8
	Eufairmairia Distant	9
	Sextius Stål	14
	Periaman Distant	8
	Centrotypus Stål	29
	Pogon Buckton	7
		287

Tribe COCCOSTERPHINI

Genus	*Coccosterphus* Stål	9
	Parayasa Distant	12
	Insitor Distant	1
	Yasa Distant	1
	Kanada Distant	1
		24

	Number of Species	
TRIBE GARGARINI		
Genus *Gargara* Amyot and Serville	145	
Xanthosticta Buckton	6	
Ebhul Distant	7	
Subrincator Distant	1	
Sipylus Stål	13	
Centrotoscelus Funkhouser	16	
Kombazana Distant	2	
Promintor Distant	1	
Hamma Buckton	3	
Umfilianus Distant	2	
Tiberianus Distant	2	
	198	
TRIBE UROXIPHINI		
Genus *Uroxiphus* Amyot and Serville	2	
Dingkana Goding	1	
Terentius Stål	8	
Insitoroides Funkhouser	1	
Pogontypus Distant	3	
Cryptaspidia Stål	14	
Mesocentrus Funkhouser	1	
Demanga Distant	2	
Awania Distant	2	
Bocchar Jacobi	4	
Occator Distant	1	
	39	
TRIBE OXYRHACHISINI		
Genus *Oxyrhachis* Germar	27	
Gongroneura Jacobi	6	
Xiphistes Stål	14	
Goddefroyinella Distant	1	
Bulbauchenia Schumacher	2	
Takliwa Funkhouser	1	
Oxyrhachidia Melichar	1	
Xiphistoides Goding	2	
	54	
TRIBE DARTHULINI		
Genus *Darthula* Kirkaldy	1	
Coloborrhis Germar	3	
Hemicentrus Melichar	6	
	10	
		949
Grand Total		2334

SUPPLEMENT

Following the author's publication of his Catalogue of the Membracidæ it was his custom to record new genera and species together with titles of papers in an interleaved copy of the Catalogue. Thus his copy of the work was kept up to date from the time of its publication in 1927 until his final illness in 1948. The additions listed below are selected from those notes, covering the period between the completion of the manuscript for the present work in 1938 and the end of his life. There is no claim of completeness of the record for this ten-year interval, except that it covers the author's efforts in that direction. Some ambiguities exist in the author's notes on changes of name, making it impossible to be certain of his interpretations of them. They are therefore omitted here. The order followed in the lists below is substantially that of the 1927 Funkhouser Catalogue.

RECENT GENERA

Penichrophorus Richter, Caldasia VI : 86 (1943).

Hemicardiacus Plummer, Proc. Ent. Soc. Wash. XLVII : 2. 41 (1945) [*saundersi*].

Atymnina Plummer, Journ. N. Y. Ent. Soc. XLVI : 3. 240 (1938) [*elongata*].

Acentrotus Kato, Memb. East Asia 151 (1940) [*incultus*].

Thuris Funkhouser, Ent. News LIV : 9. 229 (1943) [*fenestratus*].

Tsunozemia Kato, Memb. East Asia 152 (1940) [*mojiensis*].

Gonoconophora da Fonseca, Arq. Inst. Biol. 19 : 111 (1949) [*funkhouseri*].

NEW SPECIES

Membracis richteri da Fonseca, Arq. Inst. Biol. 19 : 113 (1949).	Brazil.
Spongophorus hoffmanni Pelaez, Anales Inst. Biol. XI : 1. 285 (1940).	Mexico.
Alchisme laticornis Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 277 (1940).	Peru.
A. pinguicornis Funkhouser, Journ. N.Y. Ent. Soc. XLVIII : 3. 277 (1940).	Peru.
A. spinosa Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 278 (1940).	Peru.
Potnia brunneifrontis Funkhouser, Memb. Guat. 464 (1943).	Guatemala.
Bolbonota atitla Funkhouser, Memb. Guat. 455 (1943).	Guatemala.
Enchenopa ansera Funkhouser, Memb. Guat. 456 (1943).	Guatemala.
Erechtia trimaculata da Fonseca, Arq. Inst. Biol. XII : 10. 132 (1941).	Brazil.
Hypsoprora alticornis Plummer, Memb. Mex. 155 (1943).	Mexico.
H. brevis Plummer, Memb. Mex. 159 (1943).	Mexico.
H. caldwelli Plummer, Memb. Mex. 158 (1943).	Mexico.
H. pyramidata Plummer, Memb. Mex. 156 (1943).	Mexico.
Leioscyta neivai da Fonseca, Arq. Inst. Biol. XII : 10. 129 (1941).	Brazil.
L. quadrimaculata da Fonseca, Arq. Inst. Biol. XII : 10. 131 (1941).	Brazil.
Potnia maculata Funkhouser, Memb. Guat. 463 (1943).	Guatemala.

Umbonia antigua Funkhouser, Memb. Guat. 462 (1943).	Guatemala.
U. immaculata Funkhouser, Memb. Guat. 463 (1943).	Guatemala.
Aconophora brevicornis Funkhouser, Memb. Guat. 467 (1943).	Guatemala.
A. brunnea Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 281 (1940).	Peru.
A. coffea Funkhouser, Memb. Guat. 466 (1943).	Guatemala.
A. erecta Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 280 (1940).	Peru.
A. lutea Funkhouser, Memb. Guat. 466 (1943).	Guatemala.
Paragargara nigra Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 279 (1940).	Peru.
Rhexia diversa Richter, Caldasia V : 43 (1942).	Colombia.
R. rubofenestrata Richter, Caldasia V : 46 (1942).	Colombia.
Sundarion nigromaculata Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 281 (1940).	Peru.
Tragopa testudina Funkhouser, Memb. Guat. 470 (1943).	Guatemala.
Centrogonia brevicornis Richter, Caldasia II : 71 (1941).	Colombia.
C. gracilicornis Richter, Caldasia VI : 100 (1943).	Colombia.
C. incornigera Richter, Caldasia III : 41 (1941).	Colombia.
C. nigrovittata Richter, Caldasia VI : 96 (1943).	Colombia.
C nigerrima Richter, Caldasia VI : 99 (1943).	Colombia.
C. curvicornis Funkhouser, Bull. Brook. Ent. Soc. XXXVII : 15 (1943).	Arizona.
Ceresa grisescens Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 283 (1940).	Peru.
C. luteimaculata Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 262 (1940).	Peru.
C. rubra Funkhouser, Memb. Guat. 471 (1943).	Guatemala.
C. viridolineata Funkhouser, Memb. Guat. 472 (1943).	Guatemala.
Micrutalis nigromarginata Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 289 (1940).	Peru.
Penichrophorus sericatus Richter, Caldasia VI : 86 (1943).	Colombia.
P. dilatatus Richter, Caldasia VI : 92 (1943).	Colombia.
P. bogotensis Richter, Caldasia VI : 87 (1943).	Colombia.
P. impressus Richter, Caldasia VI : 96 (1943).	Colombia.
Poppea vestigia Plummer, Rev. Ent. Soc. Wash. XLVII : 41 (1945).	Salvador.
Stictolobus delongi Plummer, Memb. Mex. 160 (1943).	Mexico.
S. solanofilus da Fonseca, Livro d'Almeida 17 : 187 (1946).	Brazil.
S. nitidus Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 284 (1940).	Peru.
S. marginatus Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 285 (1940).	Peru.
S. viridis Funkhouser, Bull. Brook. Ent. Soc. XXXVIII : 3. 75 (1943).	United States.
Thrasymedes virescens Funkhouser, Journ. N. Y. Ent. Soc. XLVIII : 3. 288 (1940).	Peru.
Hemicardiacus saundersi Plummer, Proc. Ent. Soc. Wash. XLVII : 2. 40 (1945).	Guatemala.
Antianthe chichiana Funkhouser, Memb. Guat. 476 (1943).	Guatemala.

Aphetea nigropicta Funkhouser, Memb. Guat. 476 (1943).	Guatemala.
Atymna distincta Plummer, Journ. N. Y. Ent. Soc. XLVI : 3. 239 (1938).	Mexico.
A. gigantea Plummer. Journ. N. Y. Ent. Soc. XLVI : 3. 238 (1938).	Mexico.
Atymnina elongata Plummer, Journ. N. Y. Ent. Soc. XLVI : 30. 241 (1938).	Mexico.
Xantholobus arizonensis Funkhouser, Bull. Brook. Ent. Soc. XXXVIII : 3. 76 (1943).	Arizona.
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NEW LOCALITY RECORDS

Notocera curviceps	British Guiana.
N. hispida	Guatemala.
Alchisme grossa	Argentina.
A. obscura	Argentina.
A. projecta	Argentina.
Hoplophorion corrosum	Argentina.
Leioscyta rufodorsa	British Guiana.
Membracis arcuata	Argentina.
M. foliata	Argentina.
M. peruviana	Argentina.
M. tectigera	Argentina.
Notocera bituberculata	Argentina.
Aconophora disparicornis	Guatemala.
A. ferruginea	Guatemala.
A. femoralis	Argentina.
A. fusiformis	Argentina, British Guiana.
A. laminata	Guatemala.
A. laticornis	Argentina.
A. marginata	British Guiana.
A. pallescens	British Guiana, Peru, Bolivia.
A. pinguis	Argentina.
A. projecta	Argentina, British Guiana.
A. sinanjensis	Argentina.
Aspona cuneata	Guatemala.
Cymbomorpha dorsata	British Guiana.
Darnis lateralis	Guatemala.
Hemikyptha marginata	Argentina.
Heteronotus quadrinodosus	Argentina.
H. tridens	British Guiana.
Ictaranthe latifrons	Argentina.
Nassunia binotata	British Guiana.
Stictopelta cruentata	Argentina.
S. fraterna	Argentina, British Guiana.
S. latilinea	Argentina.
S. præcox	Argentina.
Sundarion apicalis	Argentina.
S. bimaculata	Argentina.
S. brunniventris	Argentina.
S. flavomarginata	Argentina.
S. xanthographa	Argentina.
Horiola lineolata	British Guiana.
Acutalis nigrinervis	Canada.
Centrogonia nasuta	Colombia.
Ceresa basalis	Quebec.
C. bifasciata	Argentina.
C. concinna	Argentina.
Cyphonia clavata	Argentina.
C. fuscata	Argentina, Peru.
C. proxima	Argentina, Peru.
Euritia albifasciata	Argentina.
Micrutalis lugubrina	Guatemala.
M. pallens	British Guiana, Argentina.
Poppea affinis	Costa Rica.
Stictolobus maculatus	Argentina.
Telamona westcotti	Canada.
Anthianthe expansa	British Guiana.
A. reversa	Guatemala.
A. viridissima	Guatemala
Atymna querci	Canada.
Cyrtolobus vau	Canada.
Ophiderma flava	Canada.
O. flavicephala	Canada.
O. pubescens	Canada.
Amastris antica	British Guiana.
A. compacta	British Guiana.
A. minuta	British Guiana.
Dioclophara mixta	Argentina.
Entylia bactriana	Canada.
E. gemmata	Argentina.
Gelastogonia erythrops	Argentina.
G. exaltata	British Guiana.
Polyglypta dorsalis	Guatemala.
Tynelia hirsuta	British Guiana.

Anchon boneti	Belgian Congo.
A. poensis	Belgian Congo.
A. pilosum	Hainan.
Bocydium globulare	British Guiana.
Centrotoscelus kashunensis	Formosa.
C. marginata	Formosa.
C. nigrifrons	Formosa.
C. nitida	Formosa.
C. shinchicuna	Formosa.
Endoiastus caviceps	Ecuador.
Gargara asperula	Belgian Congo.
G. brunneidorsata	Formosa.
G. davidi	Formosa.
G. hainanensis	Formosa.
G. nigromaculata	Formosa.
G. nitidipennis	Formosa.
G. piceola	Formosa.
G. sordida	Formosa.
Otinotus pilosus	Belgian Congo.
Pantaleon bufo	Formosa.
Platybelus africanus	Belgian Congo.
P. insignis	Belgian Congo.
P. sinuosus	Belgian Congo.
Platycentrus taurinus	Mexico.
Pyrgonota arborea	China.
Sipylus auriculatus	China.
Spalirisis alticornis	Belgian Congo.
Stegaspis insignis	British Guiana.
Stylocentrus ancora	British Guiana.
Telingana canescens	Nicobar.
T. flavipes	Borneo.
Tolania opponens	British Guiana.
Tricentrus albomaculatus	Brazil.
T. allabens	Formosa.
T. amplicornis	China.
T. basalis	Formosa.
T. bergeri	Vladivostok.
T. brevis	Borneo.
T. brevispinis	China.
T. fulgidus	Kuala Lumpur.
Tricoceps rugosa	Belgian Congo.
Tshaka obortus	Belgian Congo.

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(THE SYNONYMS ARE IN ITALICS).

***Note :** Page 303, please read *Metcalfiella corrosa* Fairm. in place of *Hoplophorion corrosum.*

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Fig. 1. *Membracis foliata* Linnæus.
— 2. **Membracis peruana* Schmidt.
— 3. *Enchenopa monoceros* Germar.
— 4. *Campylenchia curvata* Fabricius.
— 5. *Tritropidia galeata* Olivier.
— 6. *Spongophorus ballista* Germar.
— 7. *Philya californiensis* Goding.
— 8. *Hypsoprora coronata* Fabricius.
— 9. *Notocera bituberculata* Fowler.
— 10. *Scalmorphus reticulatus* Fowler.
— 11. *Multareis cornutus* Goding.
— 12. *Bolbonota pictipennis* Fairmaire.

PLATE 2.

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— 18. *Alchisme grossa* Fairmaire.
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— 21. *Potnia venosa* Germar.
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— 25. *Umbonia spinosa* Fabricius.

PLATE 3.

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— 29. *Stictopelta acutula* Fairmaire.
— 30. *Aspona turgescens* Fowler.
— 31. *Hypheus ursus* Fairmaire.
— 32. *Paradarnoides severini* Fowler.
— 33. *Cymbomorpha amazona* Stål.

* **Note:** A later record places this species, *Membracis peruana* Schmidt, under genus *Enchophyllum* for the second time.

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— 43. *Nessorhinus vulpes* Amyot & Serville.
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PLATE 6.

Fig. 61. *Smilia camelus* Fabricius.
— 62. *Adippe zebrina* Fairmaire.
— 63. *Godingia guerreroensis* Fowler.
— 64. *Telamonanthe pulchella* Ball.
— 65. *Antianthe expansa* Germar.
— 66. *Xantholobus muticus* Fabricius.
— 67. *Evashmeadea concinna* Goding.
— 68. *Atymna castaneæ* Fitch.

Fig. 69. *Grandolobus grandis* Van Duzee.
— 70. *Cyrtolobus vau* Say.
— 71. *Ophiderma salamandra* Fairmaire.
— 72. *Polyrhyssa cultrata* Fabricius.
— 73. *Metheisa lucillodes* Fowler.
— 74. *Polyglyptodes cucullatus* Fowler.
— 75. *Ecuadoria bicristata* Stål.
— 76. *Dioclophara viridula* Fairmaire.
— 77. *Hille sobria* Walker.
— 78. *Gelastogonia chrysura* Fairmaire.
— 79. *Heranice miltoglypta* Fairmaire.
— 80. *Maturna parvula* Fabricius.

PLATE 7.

Fig. 81. *Ceresa bubalus* Fabricius.
— 82. *Centrogonia ciliata* Fairmaire.
— 83. *Antonæ incrassata* Fairmaire.
— 84. *Xolonia variegata* Plummer.
— 85. *Cyphonia trifida* Fabricius.
— 86. *Poppea capricornis* Fowler.
— 87. *Clepsydrius constrictus* Fowler.
— 88. *Parantonæ dipteroides* Fowler.
— 89. *Melusina nigriventris* Funkhouser.
— 90. *Stictocephala inermis* Fabricius.
— 91. *Stictolobus trilineatus* Funkhouser.
— 92. *Trachytalis distinguenda* Fowler.
— 93. *Amastris obtegens* Fabricius.
— 94. *Tynelia brunnea* Funkhouser.
— 95. *Boëthoös reticulata* Fabricius.
— 96. *Vanduzea arquata* Say.
— 97. *Lallemandia nodosa* Funkhouser.
— 98. *Bajulata bajula* Goding.
— 99. *Hygris unicarinata* Stål.
— 100. *Idioderma virescens* Van Duzee.
— 101. *Erosne notata* Walker.
— 102. *Polyglypta costata* Burmeister.
— 103. *Bilimekia styliformis* Fowler.

PLATE 8.

Fig. 104. *Entylia sinuata* Fabricius.
— 105. *Publilia concava* Say.
— 106. *Telamona ampelopsidis* Harris.
— 107. *Helonica excelsa* Fairmaire.

Note : Mention of fig. 103, *Bilimekia styliformis* Fowl., has been omitted in the text (p. 144).

Fig. 108. *Heliria cristata* Fairmaire.
— 109. *Telonaca ramona* Ball.
— 110. *Palonica pyramidata* Uhler.
— 111. *Thelia bimaculata* Fabricius.
— 112. *Glossonotus acuminatus* Fabricius.
— 113. *Carynota mera* Say.
— 114. *Tropidarnis tectigera* Fowler.
— 115. *Archasia galeata* Fabricius.
— 116. *Aphetea inconspicua* Fowler.
— 117. *Phormophora maura* Fabricius.
— 118. *Acutalis semicrema* Say.
— 119. *Thrasymedes lineola* Walker.
— 120. *Euritea albifasciata* Funkhouser.
— 121. *Micrutalis ephippium* Burmeister.

PLATE 9.

Fig. 122. *Abelus luctuosus* Stål.
— 123. *Scytodepsa exigua* Fabricius.
— 124. *Tropidaspis carinata* Fabricius.
— 125. *Endoiastus caviceps* Fowler.
— 126. *Mina spinosa* Funkhouser.
— 127. *Gerridius scutellatus* Fowler.
— 128. *Lamproptera cristata* Stål.
— 129. *Orekthen osborni* Funkhouser.
— 130. *Melizoderes carinatus* Blanchard.
— 131. *Tolania opponens* Walker.
— 132. *Centrodontus atlas* Goding.
— 133. *Tylocentrus reticulatus* Van Duzee.
— 134. *Flexocentrus brunneus* Funkhouser.
— 135. *Œda inflata* Fabricius.
— 136. *Lycoderes gaffa* Fairmaire.
— 137. *Stegaspis insignis* Buckton.
— 138. *Glischrocentrus cucullatus* Fowler.
— 139. *Microcentrus caryæ* Fitch.
— 140. *Centruchoides oppugnans* Walker.
— 141. *Bocydium globulare* Fabricius.
— 142. *Stylocentrus ancora* Perty.
— 143. *Smerdalea horrescens* Fowler.

PLATE 10.

Fig. 144. *Dontonodus serraticornis* Funkhouser.
— 145. *Goniolomus tricorniger* Stål.
— 146. *Boöcerus gilvipes* Stål.
— 147. *Ischnocentrus inconspicuous* Buckton.

Fig. 148. *Campylocentrus nigris* Funkhouser.
— 149. *Ophicentrus notandus* Fowler.
— 150. *Centronodus denticulus* Funkhouser.
— 151. *Platycentrus acuticornis* Stål.
— 152. **Orthobelus havanensis* Fairmaire.
— 153. *Callicentrus aurifascia* Walker.
— 154. *Daimon satyrus* Buckton.
— 155. *Amblycentrus pubescens* Fowler.
— 156. *Centriculus rufotestaceus* Fowler.
— 157. *Brachybelus cruralis* Stål.
— 158. *Brachycentrutus punctatus* Metcalf & Bruner.
— 159. *Monobelus fasciatus* Fabricius.
— 160. *Marshallella rubripes* Goding.
— 161. *Centrotus cornutus* Linné.
— 162. *Tricoceps pubipennis* Fairmaire.
— 163. *Centrotusoides muiri* Distant.
— 164. *Platybelus sinuosus* Distant.
— 165. *Evanchon serpentinus* Funkhouser.
— 166. *Amitrochates grahami* Distant.

PLATE 11.

Fig. 167. *Barsumas primus* Distant.
— 168. *Monocentrus fuscum* Buckton.
— 169. **Evanchon javanensis* Funkhouser.
— 170. *Anchon ulniforme* Buckton.
— 171. *Spalirisis nigris* Funkhouser.
— 172. *Pantaleon brunneus* Funkhouser.
— 173. *Antialcidas trifoliaceus* Walker.
— 174. *Maurya paradoxus* Lethierry.
— 175. *Machærotypus rubronigris* Funkhouser.
— 176. *Tricentrus convergens* Walker.
— 177. *Tricentroides proprius* Distant.
— 178. *Eumonocentrus bifurcus* Funkhouser.
— 179. *Crito festivus* Distant.
— 180. *Hypsauchenia hardwickii* Kirby.
— 181. *Pyrgauchenia brunnea* Funkhouser.
— 182. *Gigantorhabdus enderleini* Schmidt.
— 183. *Hypsolyrium uncinata* Stål.
— 184. *Pyrgonota bifoliata* Westwood.

* **Note**: (1) Plate 10, fig. 152, please read Fairmaire in place of Stål.

(2) *Maguva serpentina* was removed by Goding and made the type of genus *Evanchon*. To this group the author also assigned *M. sinuata*, which he later considered a synonym of *Manuva nigra* Funkhouser. His notes show that a still later decision was to place it under *Evanchon* in which *sinuatus* was preoccupied by an African species, making necessary the new name, *Evanchon javanensis*.

Fig. 185. *Funkhouserella bulbiturris* Funkhouser.
— 186. *Hybandoides sumatrensis* Funkhouser.

PLATE 12.

Fig. 187. *Centrochares horrificus* Westwood.
— 188. *Negus asper* Jacobi.
— 189. *Micreune formidenda* Walker.
— 190. *Leptobelus dama* Germar.
— 191. *Eutryonia monstrifera* Walker.
— 192. *Elaphiceps cervus* Buckton.
— 193. *Leptocentrus reponens* Walker.
— 194. *Nilautama minutispina* Funkhouser.
— 195. *Arimanes doryensis* Distant.
— 196. *Convector cavendus* Distant.
— 197. *Telingana balteata* Distant.
— 198. *Acanthophyes walkeri* Funkhouser.
— 199. *Bathoutha indicans* Walker.
— 200. *Indicopleustes albomaculatus* Distant.
— 201. *Parapogon insignis* Distant.
— 202. *Xiphopœus erectus* Distant.
— 203. **Maarbarus bubalus* Kirby.
— 204. *Aspasiana carbonaria* Distant.
— 205. *Tshaka obortus* Distant.
— 206. *Polonius biseratensis* Distant.
— 207. *Dacartha hyalina* Pelaez.
— 208. *Imporcitor typicus* Distant.
— 209. *Otinotus kerenianus* Distant.
— 210. *Eufrenchia bucktoni* Funkhouser.

PLATE 13.

Fig. 211. *Cebes transiens* Walker.
— 212. *Sarantus wallacei* Stål.
— 213. *Otinotoides spicatus* Distant.
— 214. *Ceraon vitta* Walker.
— 215. *Emphusis malleus* Walker.
— 216. *Acanthucus gracilispinus* Stål.
— 217. *Sertorius australis* Fairmaire.
— 218. *Centruchus brevicornis* Funkhouser.
— 219. *Eufairmairia acanthaspis* Fairmaire.
— 220. *Sextius virescens* Fairmaire.
— 221. *Periaman flavolineatus* Buckton.
— 222. *Centrotypus amplicornis* Stål.
— 223. *Pogon auriculatum* Stål.
— 224. **Coccosterphus tuberculatus* Motschulsky.

* **Note** : (1) On plate, please read *Maarbarus bubalus* Kirby.
(2) On plate, please read *Coccosterphus tuberculatus* Motschulsky.

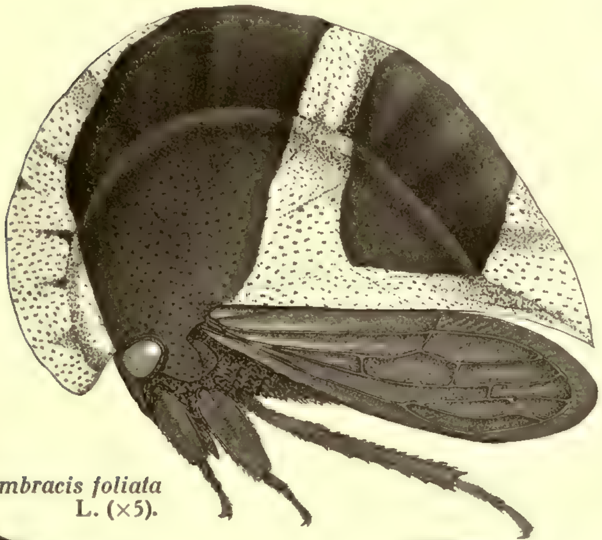
Fig. 225. *Parayasa typica* Distant.
— 226. *Insitor exemplificatus* Distant.
— 227. *Yasa greeni* Distant.
— 228. *Kanada irvinei* Distant.
— 229. *Gargara genistæ* Fabricius.
— 230. *Xanthosticta pseudocornis* Funkhouser.
— 231. *Ebhul varius* Walker.
— 232. *Sipylus dilatatus* Walker.
— 233. *Centrotoscelus typus* Funkhouser.

PLATE 14.

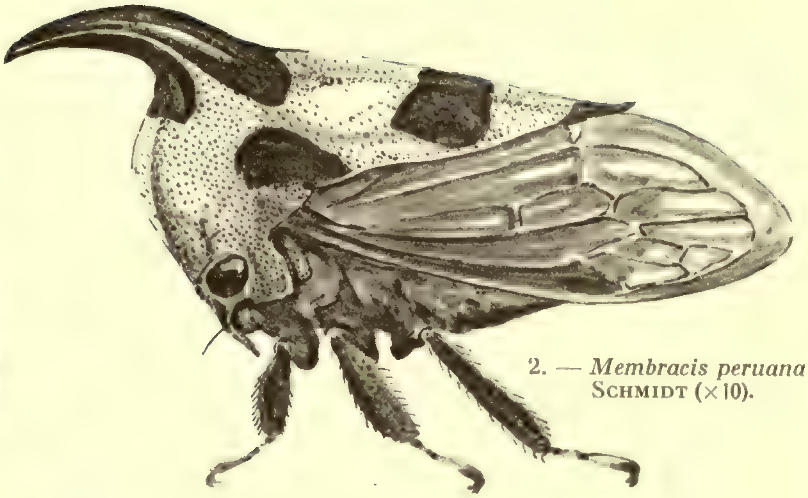
Fig. 234. *Kombazana fidelis* Distant.
— 235. *Promintor nominatus* Distant.
— 236. *Hamma mabirensis* China.
— 237. *Tiberianus typicus* Distant.
— 238. *Uroxiphus maculiscutum* Amyot & Serville.
— 239. *Dingkana borealis* Goding.
— 240. *Terentius rolandi* Distant.
— 241. *Insitoroides typicus* Funkhouser.
— 242. *Pogontypus complicatus* Melichar.
— 243. *Cryptaspidia tagalica* Stål.
— 244. *Mesocentrus pyramidatus* Funkhouser.
— 245. *Demanga sooknana* Distant.
— 246. *Awania vicina* Goding.
— 247. *Bocchar montanus* Jacobi.
— 248. *Occator erectus* Distant.
— 249. *Oxyrhachis tarandus* Fabricius.
— 250. *Gongroneura brevicornis* Jacobi.
— 251. *Xiphistes furcicornis* Germar.
— 252. *Bulbauchenia mirabilis* Funkhouser.
— 253. *Takliwa carteri* Funkhouser.
— 254. *Oxyrhachidia inermis* Stål.
— 255. **Xiphistoides carinatus* Funkhouser.
— 256. *Darthula hardwicki* Gray.
— 257. *Hemicentrus retusus* Distant.

* **Note** : On plate, please read *Xiphistoides carinatus*.

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1. — *Membracis foliata* L. (×5).



2. — *Membracis peruana* SCHMIDT (×10).



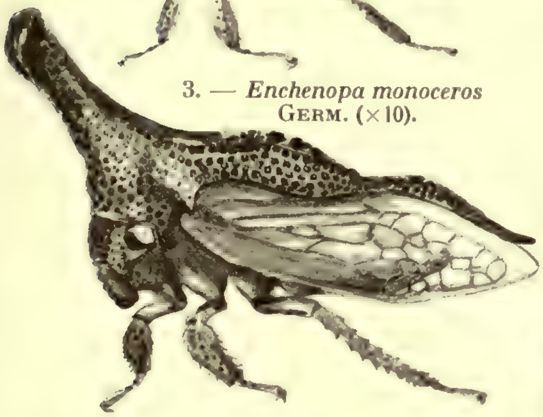
3. — *Enchenopa monoceros* GERM. (×10).



4. — *Campylenchia curvata* F. (×10).



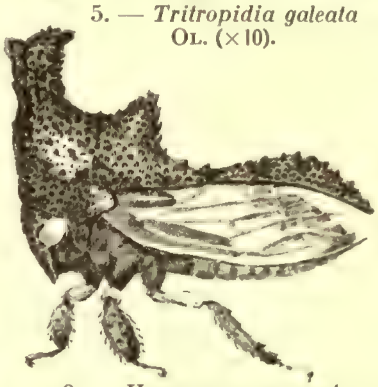
5. — *Tritropidia galeata* OL. (×10).



7. — *Philya californiensis* GODG. (×10).



9. — *Notocera bituberculata* FOWL. (×10).



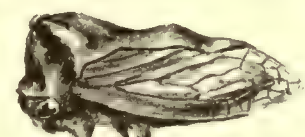
8. — *Hypsoprora coronata* F. (×6 env.).



6. — *Spongophorus ballista* GERM. (×5).



12. — *Bolbonota pictipennis* FAIRM. (×10).



11. — *Multareis cornutus* GODG. (×10).



10. — *Scalmorphus reticulatus* FOWL. (×10).

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13. — *Bolbonotodes ganglbaueri* Fowl. (×10).



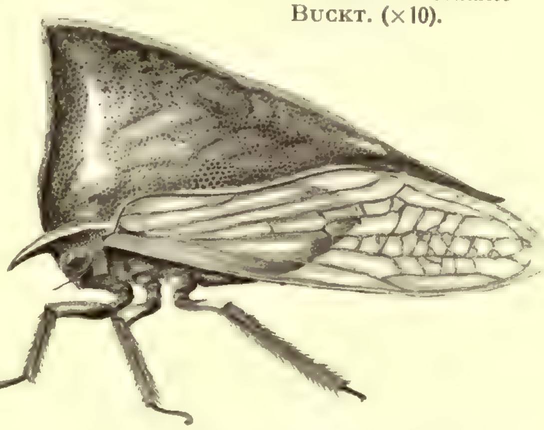
14. — *Erechtia succedanii* Buckt. (×10).



16. — *Leioscyta ferruginipennis* Godg. (×10).



21. — *Potnia venosa* Germ. (×5).



18. — *Alchisme grossa* Fairm. (×5).



17. — *Taunaya rugosa* da Fons. (×10).



20. — *Aconophoroides gladiator* Walk. (×5).



19. — *Ochropepla corrosa* Fairm. (×10).



25. — *Umbonia spinosa* F. (×5).



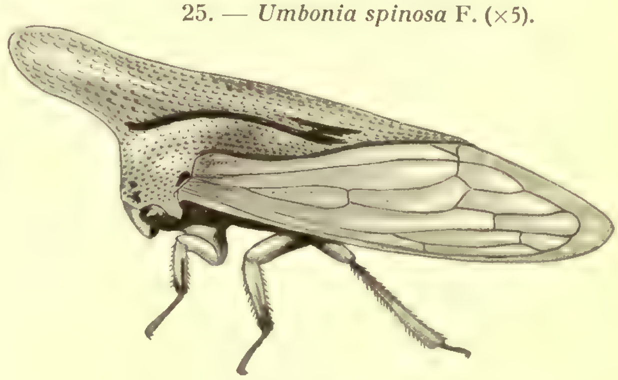
22. — *Platycotis vittata* F. (×5).



24. — *Metcalfiella pertusa* Germ. (×5).



15. — *Tylopelta gibbera* Stål (×10).



23. — *Orthoplophora salvini* Fowl. (×5).

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26. — *Darnis partita* WALK. (×5).



27. — *Hebeticoides acutus* FOWL. (×10).



28. — *Ochrolomia tricincta* BURM. (×5).



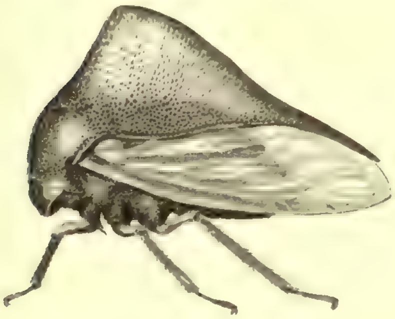
29. — *Stictopelta acutula* FAIRM. (×5).



30. — *Aspona turgescens* FOWL. (×10).



31. — *Hypheus ursus* FAIRM. (×5).



33. — *Cymbomorpha amazona* STÅL (×5).



34. — *Iria lethierryi* FUNKH. (×10).



32. — *Paradarnoides severini* FOWL. (×5).



35. — *Rhexia pallescens* F. (×5).



36. — *Smiliorhachis octilinea* STÅL (×5)



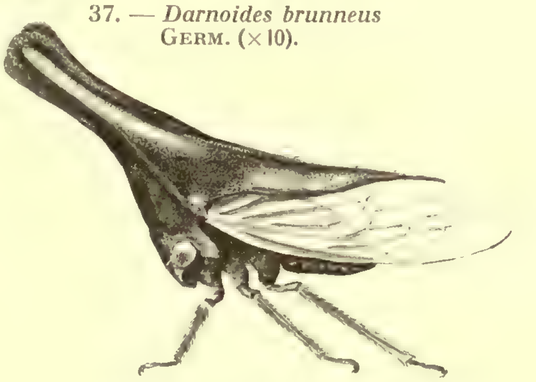
37. — *Darnoides brunneus* GERM. (×10).



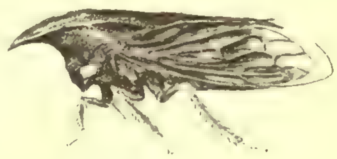
38. — *Brachytalis fuscus* M. & B. (×10).



39. — *Procyrta intectus* FOWL. (×10).



40. — *Aconophora laminata* FAIRM. (×5).

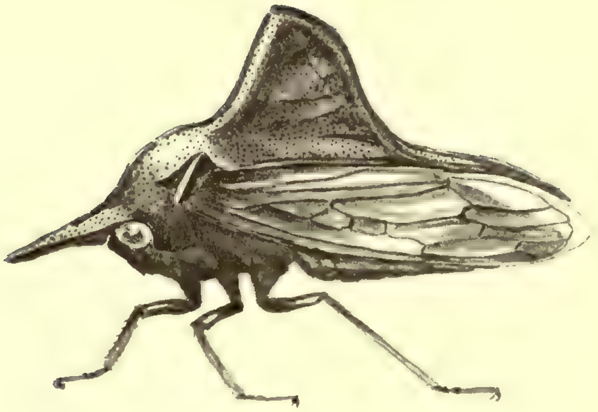


41. — *Kronides incumbens* GERM. (×5).

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42. — *Orekthophora cornuta* Funkh. (×10).



43. — *Nessorhinus vulpes* A. & S. (×10).



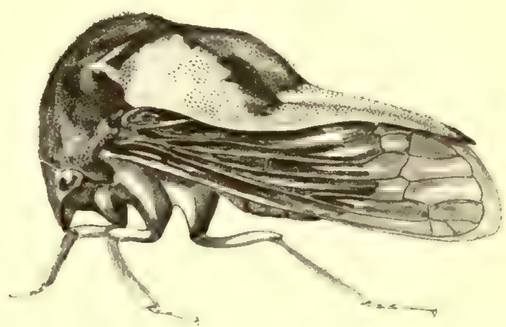
44. — *Spinodarnoides typus* Funkh. (×10).



45. — *Proterpia rotundicornis* Fairm. (×5).



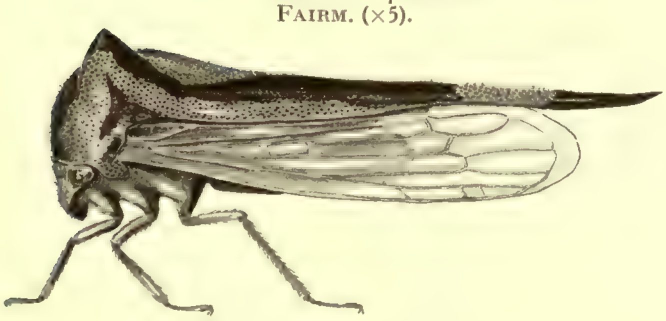
46. — *Eualthe punctum* Fairm. (×5).



50. — *Hyphinoë bigutta* Walk. (×5).



47. — *Nassunia bipunctata* Fairm. (×5).



49. — *Bubalopa furcata* Fairm. (×5).

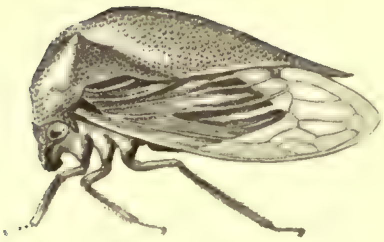


48. — *Tomogonia vittatipennis* Fairm. (×5).

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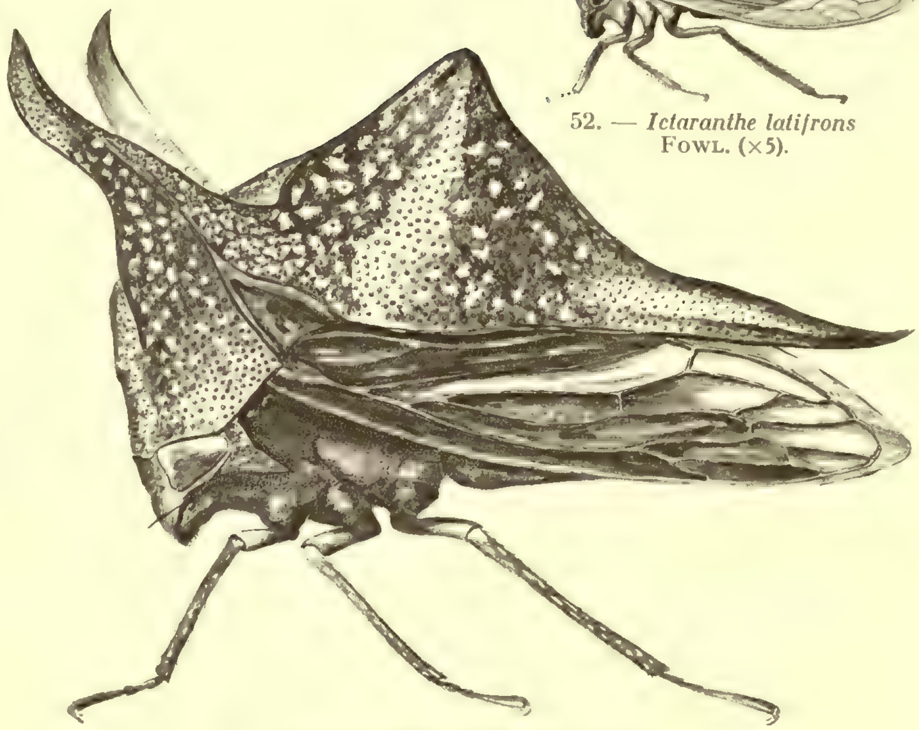
51. — *Alcmeone picea* FAIRM. (×5).



52. — *Ictaranthe latifrons* FOWL. (×5).



54. — *Sundarion flava* FAIRM. (×5).



53. — *Hemikyptha marginata* F. (×5).



56. — *Heliodore laporti* GERM. (×10).



55. — *Heteronotus tridens* BURM. (×5).



57. — *Anchistrotus maculata* GUÉR. (×5).



58. — *Tragopa brunneimaculata* FUNKH. (×10).

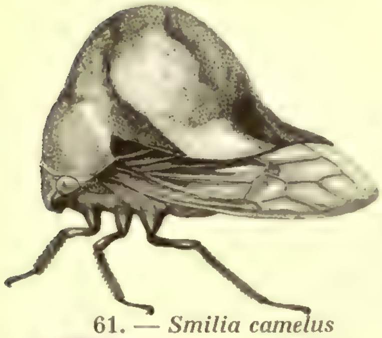


59. — *Tropidolomia auriculata* OL. (×10).



60. — *Horiola picta* COQUEB. (×10).

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61. — *Smilia camelus* F. (×5).



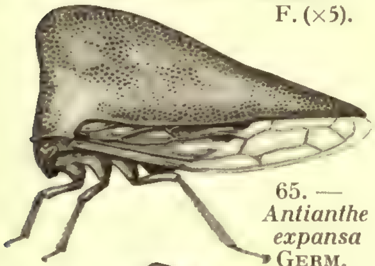
62. — *Adippe zebrina* Fairm. (×5).



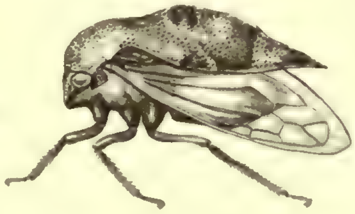
63. — *Godingia guerreroensis* Fowl. (×5).



64. — *Telamonanthe pulchella* Ball (×5).



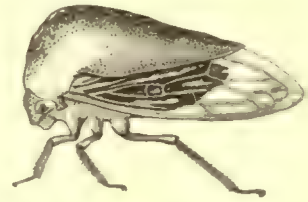
65. — *Antianthe expansa* Germ. (×5).



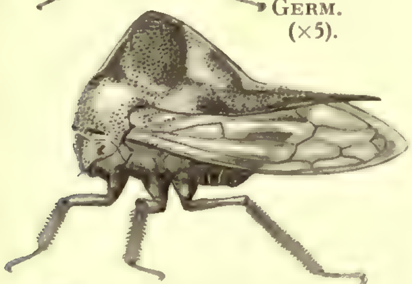
66. — *Xantholobus muticus* F. (×5).



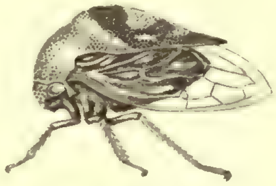
67. — *Evashmeadea concinna* Godg. (×5).



68. — *Atymna castaneae* Fitch (×5).



69. — *Grandolobus grandis* Van Duz. (×5).



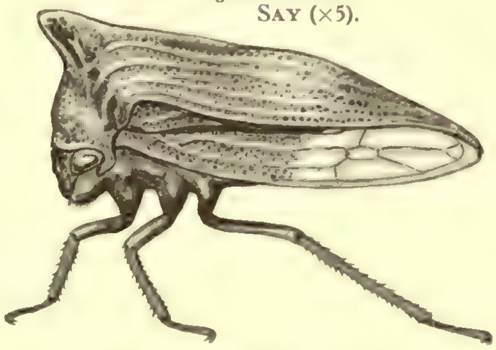
70. — *Cyrtolobus vau* Say (×5).



71. — *Ophiderma salamandra* Fairm. (×5).



72. — *Polyrhyssa cultrata* F. (×10).



73. — *Metheisa lucillodes* Fowl. (×10).



74. — *Polyglyptodes cucullatus* Fowl. (×5).



75. — *Ecuadoria bicristata* Stål (×5).



76. — *Dioclophara viridula* Fairm. (×5).



77. — *Hille sobria* Walk. (×5).



78. — *Gelastogonia chrysura* Fairm. (×5).

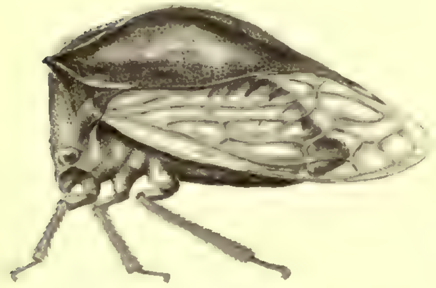


79. — *Heranice miltoglypta* Fairm. (×5).



80. — *Maturna parvula* F. (×10).

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81. — *Ceresa bubalus* F. (×5).



82. — *Centrogonia ciliata* Fairm. (×5).



83. — *Antonae incrassata* Fairm. (×5).



84. — *Xolonia variegata* Plum. (×5).



86. — *Poppea capricornis* Fowl. (×5).



87. — *Clepsydrius constrictus* Fowl. (×5).



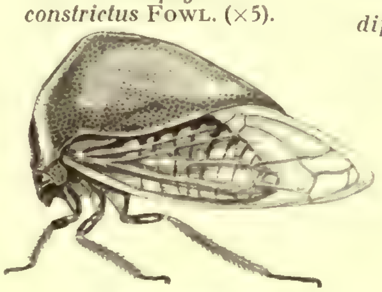
88. — *Parantonae dipteroides* Fowl. (×5).



89. — *Melusina nigriventris* Funkh. (×10).



85. — *Cyphonia trifida* F. (×5).



90. — *Stictocephala inermis* F. (×5).



91. — *Stictolobus trilineatus* Funkh. (×5).



92. — *Trachytalis distinguenda* Fowl. (×10).



93. — *Amastris obtegens* F. (×5).



94. — *Tynelia brunnea* Funkh. (×5).



95. — *Boëthoös reticulata* F. (×5).



96. — *Vanduzea arquata* Say (×5).



97. — *Lallemandia nodosa* Funkh. (×5).



98. — *Bajulata bajula* Godg. (×10).



99. — *Hygris unicarinata* Stål (×10).



100. — *Idioderma virescens* Van Duz. (×5).



101. — *Erosne notata* Walk. (×10).



102. — *Polyglypta costata* Burm. (×5).



103. — *Bilimekia styliformis* Fowl. (×5).

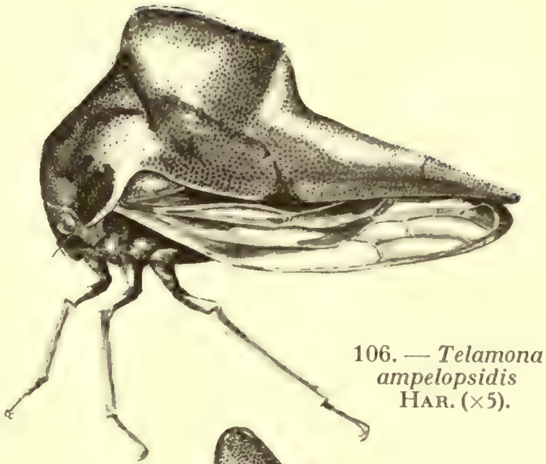
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104. — *Entylia sinuata* F. (×5).



105. — *Publilia concava* SAY (×5).



106. — *Telamona ampelopsidis* HAR. (×5).



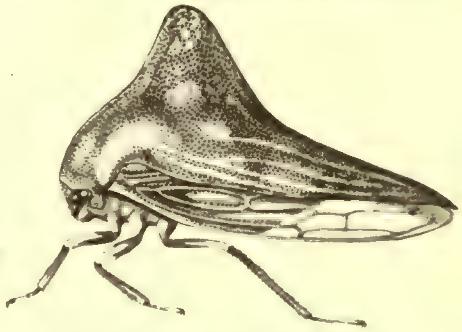
107. — *Helonica excelsa* FAIRM. (×5).



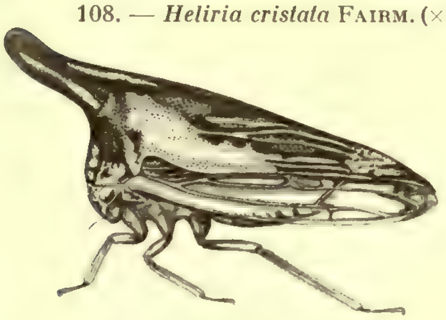
108. — *Heliria cristata* FAIRM. (×5).



109. — *Telonaca ramona* BALL (×5).



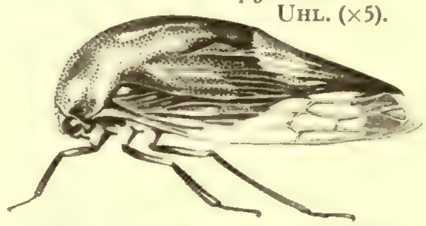
110. — *Palonica pyramidata* UHL. (×5).



111. — *Thelia bimaculata* F. (×5).



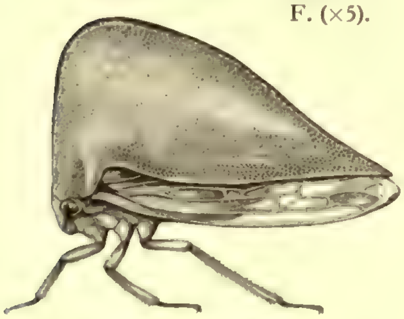
112. — *Glossonotus acuminatus* F. (×5).



113. — *Carynota mera* SAY (×5).



114. — *Tropidarnis tectigera* FOWL. (×5).



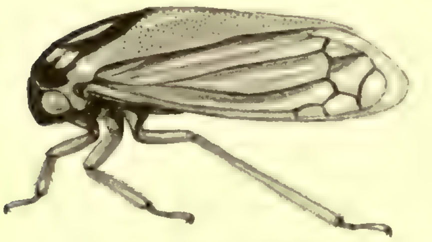
115. — *Archasia galeata* F. (×5).



116. — *Aphetea inconspicua* FOWL. (×10).



117. — *Phormophora maura* F. (×10).



118. — *Acutalis semicrema* SAY (×10).



119. — *Thrasymedes lineola* WALK. (×5).



120. — *Euritea albifasciata* FUNKH. (×5).



121. — *Micrutalis ephippium* BURM. (×10).

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122. — *Abelus luctuosus* STÅL (×10).



123. — *Scytodepsa exigua* F. (×10).



124. — *Tropidaspis carinata* F. (×5).



125. — *Endoiastus caviceps* FOWL. (×10).



126. — *Mina spinosa* FUNKH. (×5).



127. — *Gerridius scutellatus* FOWL. (×5).



128. — *Lamproptera cristata* STÅL (×5).



129. — *Orekthen osborni* FUNKH. (×5).



130. — *Melizoderes carinatus* BLANCH. (×5).



131. — *Tolania opponens* WALK. (×5).



132. — *Centrodontus atlas* GODG. (×10).



133. — *Tylocentrus reticulatus* VAN DUZ. (×5).



134. — *Flexocentrus brunneus* FUNKH. (×5).



135. — *Oeda inflata* F. (×5).



136. — *Lycoderes gaffa* FAIRM. (×5).



137. — *Stegaspis insignis* BUCKT. (×5).



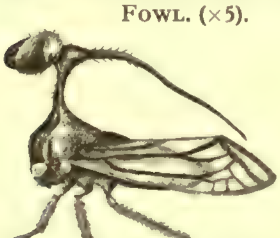
138. — *Glishrocentrus cucullatus* FOWL. (×5).



139. — *Microcentrus caryae* FITCH (×5).



140. — *Centruchoides oppugnans* WALK. (×5).



141. — *Bocydium globulare* F. (×5).



142. — *Stylocentrus ancora* PERTY (×5).

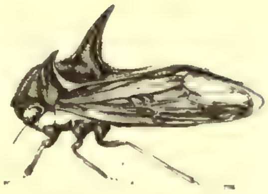


143. — *Smerdalia horrescens* FOWL. (×5).

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144. — *Dontonodus serraticornis* Funkh. (×5).



145. — *Goniolomus tricorniger* Stål (×5).



146. — *Boöcerus gilvipes* Stål (×5).



147. — *Ischnocentrus inconspicuous* Buckt. (×5).



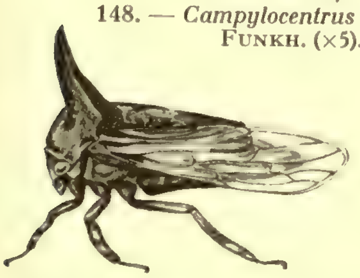
148. — *Campylocentrus nigris* Funkh. (×5).



149. — *Ophicentrus notandus* Fowl. (×10).



150. — *Centronodus denticulus* Funkh. (×5).



151. — *Platycentrus acuticornis* Stål (×5).



152. — *Orthobelus havanensis* Stål (×5).



153. — *Callicentrus aurifascia* Walk. (×5).



154. — *Daimon satyrus* Buckt. (×5).



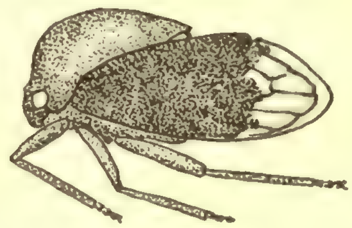
155. — *Amblycentrus pubescens* Fowl. (×10).



156. — *Centriculus rufotestaceus* Fowl. (×5).



157. — *Brachybelus cruralis* Stål (×10).



158. — *Brachycentrutus punctatus* M. & B. (×10).



159. — *Monobelus fasciatus* F. (×5).



160. — *Marshallella rubripes* Godg. (×5).



161. — *Centrotus cornutus* L. (×5).



162. — *Tricoceps pubipennis* Fairm. (×5).



163. — *Centrotusoides muiri* Dist. (×5).



164. — *Platybelus sinuosus* Dist. (×5).



165. — *Evanchon serpentinus* Funkh. (×5).

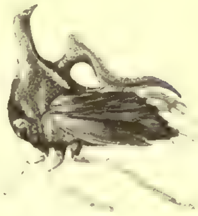


166. — *Amitrochates grahami* Dist. (×10).

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167. — *Barsumas primus* Dist. (×5).



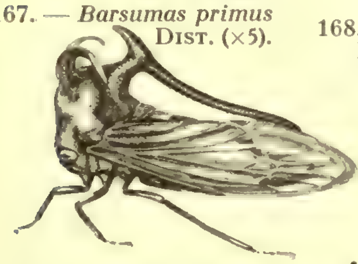
168. — *Monocentrus fuscum* Buckt. (×5).



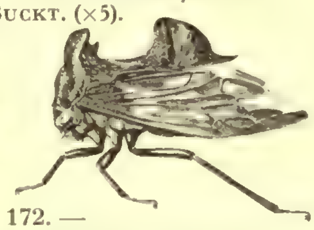
169. — *Evanchon javanensis* Funkh. (×5).



170. — *Anchon ulniforme* Buckt. (×5).



171. — *Spalirisis nigris* Funkh. (×5).



172. — *Pantaleon brunneus* Funkh. (×5).



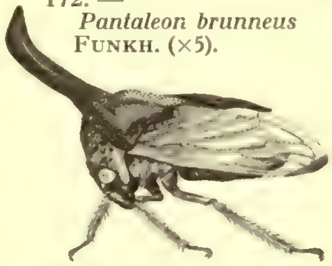
173. — *Antialcidas trifoliaceus* Walk. (×5).



174. — *Maurya paradoxus* Leth. (×5).



175. — *Machaerotypus rubronigris* Funkh. (×5).



176. — *Tricentrus convergens* Walk. (×5).



177. — *Tricentroides proprius* Dist. (×5).



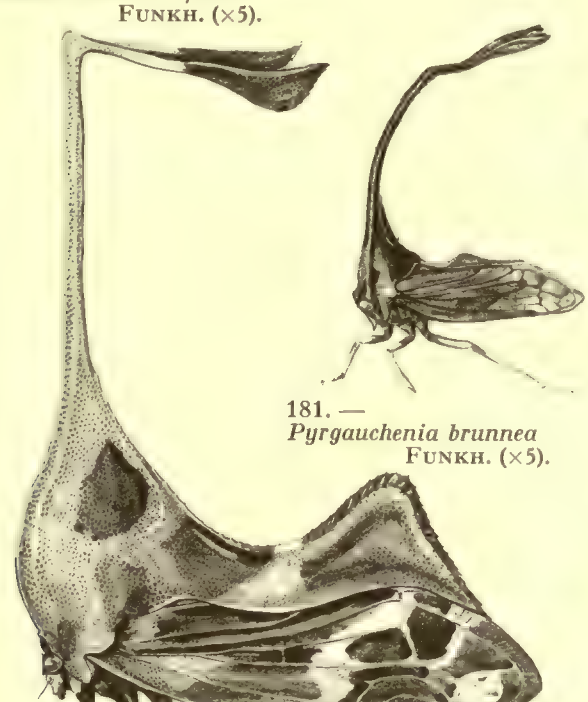
178. — *Eumonocentrus bifurcus* Funkh. (×5).



180. — *Hypsauchenia hardwickii* Kirb. (×5).



179. — *Crito festivus* Dist. (×10).



181. — *Pyrgauchenia brunnea* Funkh. (×5).

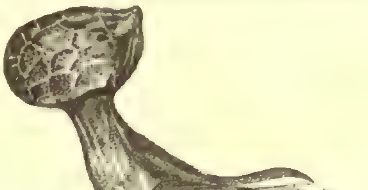
182. — *Gigantorhabdus enderleini* Schm. (×5).



183. — *Hypsolyrium uncinata* Stal (×5).



184. — *Pyrgonota bifoliata* Westw. (×5).



185. — *Funkhouserella bulbiturris* Funkh. (×5).



186. — *Hybandoides sumatrensis* Funkh. (×5).

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187. — *Centrochares horrificus* WESTW. (×5).



188. — *Negus asper* JACOBI (×5).



189. — *Micreune formidenda* WALK. (×5).



190. — *Leptobelus dama* GERM. (×5).



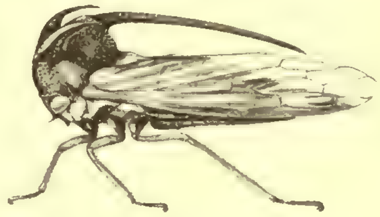
191. — *Eutryonia monstrifera* WALK. (×5).



192. — *Elaphiceps cervus* BUCKT. (×5).



194. — *Nilautama minutispina* FUNKH. (×5).



193. — *Leptocentrus reponens* WALK. (×5).



195. — *Arimanes doryensis* DIST. (×5).



196. — *Convector cavendus* DIST. (×5).



197. — *Telingana balteata* DIST. (×5).



198. — *Acanthophyes walkeri* FUNKH. (×5).



199. — *Bathoutha indicans* WALK. (×5).



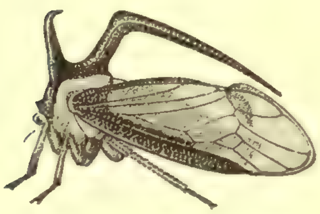
200. — *Indicopleustes albomaculatus* DIST. (×5).



201. — *Parapogon insignis* DIST. (×5).



202. — *Xiphopoeus erectus* DIST. (×5).



203. — *Maarbarus bubalus* DIST. (×5).



204. — *Aspasiana carbonaria* DIST. (×5).



205. — *Tshaka obortus* DIST. (×5).



206. — *Polonius biseratensis* DIST. (×5).



207. — *Dacartha hyalina* PELAEZ (×5).



208. — *Imporcitor typicus* DIST. (×5).



209. — *Otinotus kerenianus* DIST. (×5).



210. — *Eufrenchia bucktoni* FUNKH. (×5).

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211. — *Cebes transiens* WALK. (×5).



212. — *Sarantus wallacei* STÅL (×5).



213. — *Otinotoides spicatus* DIST. (×5).



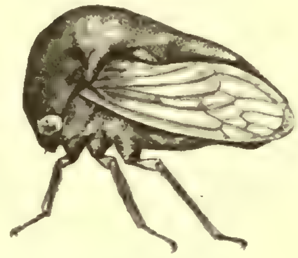
214. — *Ceraon vitta* WALK. (×5).



215. — *Emphusis malleus* WALK. (×5).



216. — *Acanthuchus gracilispinus* STÅL (×5).



217. — *Sertorius australis* FAIRM. (×5).



218. — *Centruchus brevicornis* FUNKH. (×5).



219. — *Eufairmairia acanthaspis* FAIRM. (×5).



220. — *Sextius virescens* FAIRM. (×5).



221. — *Periaman flavolineatus* BUCKT. (×5).



222. — *Centrotypus amplicornis* STÅL (×5)



223. — *Pogon auriculatum* STÅL (×5).



224. — *Coccosterphus tuberculatus* WALK. (×10).



225. — *Parayasa typica* DIST. (×10).



226. — *Insitor exemplificatus* DIST. (×5).



227. — *Yasa greeni* DIST. (×5).



228. — *Kanada irvinei* DIST. (×10).



229. — *Gargara genistae* F. (×5).



230. — *Xanthosticta pseudocornis* FUNKH. (×10).



231. — *Ebhul varius* WALK. (×10).



232. — *Sipylus dilatatus* WALK. (×10).

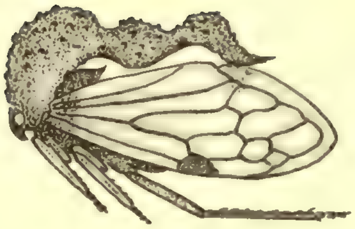


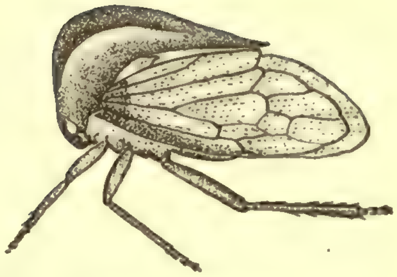
233. — *Centrotoscelus typus* FUNKH. (×10).

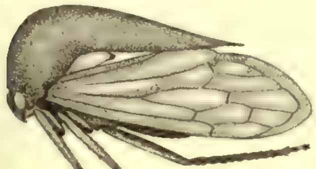
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234. — *Kombazana fidelis* Dist. (×5).


235. — *Promintor nominatus* Dist. (×5).

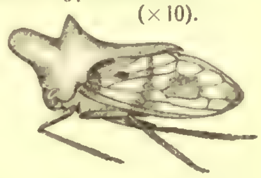

236. — *Hamma mabirensis* China (×10).


237. - *Tiberianus typicus* Dist. (×10).


238. — *Uroxiphus maculiscutum* A. & S. (×5).


239. — *Dingkana borealis* Godg. (×5).


240. — *Terentius rolandi* Dist. (×5).


241. — *Insitoroides typicus* Funkh. (×5).


242. — *Pogontypus complicatus* Mel. (×10).


243. — *Cryptaspidia tagalica* Stål (×10).


244. — *Mesocentrus pyramidatus* Funkh. (×5).


245. — *Demanga sooknana* Dist. (×5).


246. — *Awania vicina* Godg. (×5).


247. — *Bocchar montanus* Jacobi (×5).

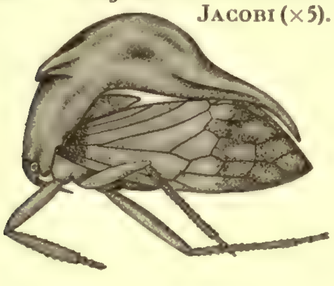

248. — *Occator erectus* Distant (×5).


249. — *Oxyrhachis tarandus* F. (×5).

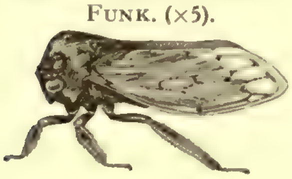

250. — *Gongroneura brevicornis* Jacobi (×5).


251. — *Xiphistes furcicornis* Germ. (×5).

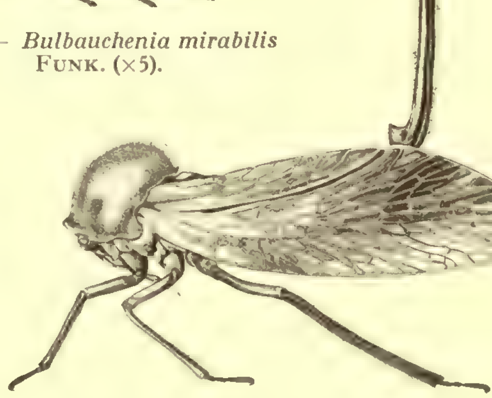

252. — *Bulbauchenia mirabilis* Funk. (×5).


253. — *Takliwa carteri* Funk. (×5).


254. — *Oxyrhachidia inermis* Stål (×5).


255. — *Xiphistoides carinatus* Funkh. (×5).


257. — *Hemicentrus retusus* Dist. (×5)


256. — *Darthula hardwicki* Gray (×3 env.).

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DIPTERA

FAM. SCATOPHAGIDÆ

DIPTERA

FAM. SCATOPHAGIDÆ

par E. SÉGUY

AVEC 44 FIGURES, PAR E. SÉGUY

LA famille des Scatophagides réunit les Myodaires inférieurs, Acalyptères ou Haplostomates, aux Myodaires supérieurs, Calyptères ou Thécostomates.

Cette famille, ordinairement placée parmi les Acalyptères, présente quelques caractères communs avec les autres familles de ce groupe : bande médiane frontale sans soies croisées, cuilleron thoracique non saillant, aile avec les nervures 3 et 4 (M 1 et M 2) parallèles ou divergentes à l'apex, abdomen formé de cinq segments visibles au moins, une, deux ou trois soies sternopleurales. La définition des Scatophagides ainsi réduite autorise leur introduction parmi les Acalyptères. Cependant la conformation de plusieurs organes importants permettrait le déplacement de cette famille et son introduction parmi les Myodaires supérieurs : trompe avec une capsule chitineuse interne sur le clypéus (fulcrum), deuxième article antennaire fendu sur toute sa longueur, stigmates abdominaux placés sur le bord des tergites, nervure costale non brisée près de la nervure humérale, toujours deux gonapophyses sensorielles sur l'appareil copulateur des mâles.

L'ensemble de ces caractères rapproche la famille des Scatophagides des Muscides inférieurs : Fucelliinés et Coenosiinés. Ces Myodaires présentent en commun les caractères suivants :

Yeux largement séparés dans les deux sexes. Ailes : nervures 3 et 4 ordinairement parallèles ou divergentes à l'apex. Cuilleron thoracique plus ou moins réduit. Pénis court.

Les caractères secondaires peuvent se schématiser dans un tableau comme il suit :

1 (2). *Abdomen avec 5 segments visibles au moins. Une, deux ou trois soies sternopleurales. Bande médiane frontale sans soies croisées. Epine costale nulle* . . . . SCATOPHAGIDÉS.

2 (1). *Abdomen formé de 4-5 segments visibles. Trois soies sternopleurales au moins.*

3 (4). *Bande médiane frontale sans soies croisées. Une paire de soies dorsocentrales présuturales (antérieures), quelquefois très courtes, ou le thorax noir (♀). Yeux ovalaires. Nervure costale non visiblement spinuleuse dans la moitié basilaire* . . . . Muscidés (COENOSIINÉS).

4 (3). *Bande médiane frontale avec des soies croisées. Deux paires de soies dorsocentrales présuturales, la paire antérieure parfois courte, jamais piliforme ou nulle. Yeux ronds. Nervure costale avec des spinules sur la moitié basale* . . . . Muscidés (FUCELLIINÉS).

Les Muscidés, qui ont été traités séparément ici même (fasc. 205), auraient pu comprendre les Scatophagidés. Mais étant donné le polymorphisme remarquable dont sont affectés les représentants de ce groupe, il semble plus commode de les considérer comme une famille indépendante dont les caractères sont résumés ci-dessous. D'ailleurs la valeur des caractères propres aux familles et aux sous-familles dépend de l'appréciation personnelle des auteurs. Au surplus, j'ai suivi le conseil de L. Cuénot qui admet que « dans le doute il vaut mieux être diviseur ».

L'étude des mouches de la famille des Scatophagides présente quelques difficultés, car elle comprend un certain nombre de genres formés d'espèces dont la taille, la chétotaxie et les caractères chromatiques sont variables. D'autres espèces peuvent présenter un dimorphisme sexuel étendu — où des espèces systématiquement voisines ont une biologie tout à fait différente.

Les difficultés d'études, qui se multiplient à mesure que l'on avance dans la connaissance du groupe, ne sont cependant pas insurmontables.

On prendra garde que certains travaux récents (e. g. Sack, *Cordyluridæ*, publiés dans l'excellente encyclopédie diptérienne paléarctique de M. le Dr E. Lindner) sont des œuvres superficielles susceptibles de prolonger des erreurs. On n'y trouve pas trace des rectifications systématiques données, par exemple, par Hendel, pas plus que d'examens critiques.

Cette remarque, dont il ne faut pas exagérer la portée, me conduit à répéter quelques principes qui m'ont constamment guidé dans mes recherches systématiques. Le systématicien, obligé d'étudier des insectes desséchés, plus ou moins bien conservés ou préparés, est, par ce fait, ordinairement désavantagé sur le biologiste qui a le loisir d'étudier des animaux vivants, souvent mis en grand nombre à sa disposition. Le systématicien utilise dans ses études un plus ou moins grand nombre de caractères qu'il est obligé de considérer comme fixes, ou dont il admet empiriquement la fixité.

Pour obtenir un minimum de sécurité dans les rangements spécifiques, j'ai constamment admis avec le R. P. J. de Joannis, que toute modification squelettique importante (e. g. apparition d'un macrochète articulé ou d'une apophyse quelconque, modification dans la forme ou la puissance des organes considérés comme sensoriels, etc.) était suffisante en soi pour imposer une dénomination à une forme distincte. Il est évident que la morphologie essentielle ne peut elle seule exprimer la valeur spécifique et que les caractères biologiques peuvent être déterminants. On connaît l'histoire de deux Mouches vertes très voisines, *Lucilia bufonivora*, espèce biologique qui s'oppose à celle du *Lucilia sylvarum*, espèce morphologique. On sait également qu'il est difficile de séparer morphologiquement ces deux espèces. Au contraire, les *Musca nebulo*, *vicina* et *domestica*, ou les *Lucilia argyrocephala* et *sericata* qu'il est facile d'isoler d'après les caractères extérieurs peuvent, en liberté, se réunir et donner des descendants féconds (Mackerras, Saccà). On verra plus loin que les *Scopeuma scybalarium*, *suillum*, *lutarium*, *inquinatum*, espèces morphologiquement différentes, peuvent aussi s'accoupler entre elles. Malheureusement le résultat n'est pas connu.

En résumé le Muscidologue se trouve en présence d'espèces de structure différente, identifiées d'après les méthodes classiques reconnaissant à des caractères extérieurs une valeur prépondérante. Ces mêmes espèces (observées en liberté ou prisonnières dans une étuve de laboratoire) accusent souvent des comportements différents qui font douter de la valeur des critères d'identification systématique habituellement utilisés.

C'est tout le problème de la définition de l'espèce qui se trouve mis en cause. En ce qui concerne les représentants de la famille des Scatophagides, insectes éminemment sauvages et irréductibles, il semble que l'expérience sur des individus captifs, même bien traités, ne puisse donner que des résultats incomplets dont l'interprétation serait nuisible. Nous sommes donc obligés d'utiliser (sans contrôle et sans réserves) les caractères traditionnels qui — malgré leur insuffisance dans l'étude d'une famille dont les représentants sont aussi polymorphes — sont les seuls que nous ayions aujourd'hui à notre disposition.

CARACTÈRES DES SCATOPHAGIDES

IMAGOS. — Tête ronde en profil, parfois élargie de face. Yeux largement séparés dans les deux sexes. Quatre soies orbitales au moins, les inférieures proclinées. Triangle ocellaire jamais prolongé en pointe antérieure. Pas de soies frontales croisées. Face plane : carènes latérales dénudées; carène interantennaire mince ou nulle. Une ou plusieurs grandes vibrisses accompagnées ou non de petites vibrisses, quelquefois une ou plusieurs fortes soies érigées sur l'angle postérieur du péristome. Barbe toujours médiocre (sauf *Pogonota*), le plus souvent formée de cils blanchâtres. Occiput couvert de soies plus ou moins épaisses et dressées, spiniformes (*Norellia*). Trompe grêle ou très épaisse, à labelles saillants et larges, armés de fortes dents propres à dilacérer et à triturer (Scatophagides zoophages et chasseurs). Palpes toujours bien développés, parfois plus longs que la trompe *(Hexamitocera, Pselaphephila, Cosmetopus dentimanus)*, filiformes (*Leptopa*), cylindriques, spatulés ou foliacés (*Acerocnema*), velus ou armés de petites soies noires spinuliformes placées à l'extrémité supérieure, un macrochète apical ou non. Base des palpes avec un petit renflement cilié ou non (palpifer et soies palpiférales). Antennes : chète robuste, velu, cilié ou plumeux, deuxième article parfois long ou courbé, troisième effilé en alène ou épaissi en fuseau à la base. — Thorax épais, hérissé de macrochètes sensoriels plus ou moins développés, parfois décolorés comme chez certains Asilides. Soies scapulaires robustes; soies acrosticales piliformes (sauf la paire préscutellaire), plus ou moins régulièrement rangées; cinq ou six soies dorsocentrales (2-3+3), plus faibles sur la partie antérieure du mésonotum (sauf *Norellia* qui présente 1+1), une ou deux intraalaires (nulles chez les *Coniosternum*); soies supraalaires et postalaires toujours présentes; s'il y a deux

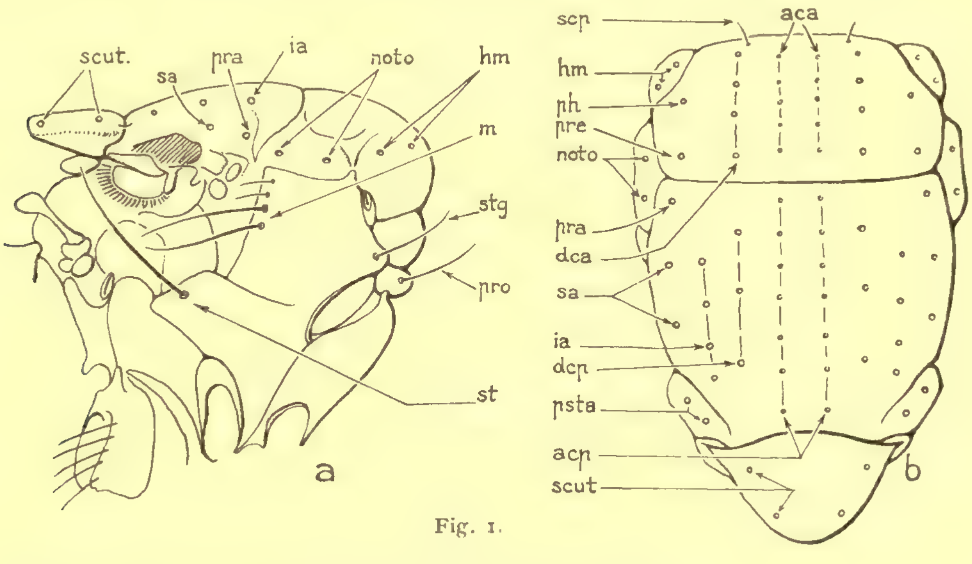


Fig. 1.

Thorax d'un Scatophagide montrant l'emplacement des macrochètes.

a. vue de profil ; — *b.* vue dorsale.

aca, soies acrosticales antérieures; — *acp*, soies acrosticales postérieures; — *dca*, dorsocentrales antérieures; — *dcp*, dorsocentrales postérieures; — *hm*, soies humérales; — *ia*, soies intraalaires; — *m*, mésopleurales; — *noto*, soies notopleurales; — *ph*, posthumérale; — *pra*, préalaire; — *pre*, présuturale; — *pro*, propleurale; — *psta*, postalaires; — *sa*, soies supraalaires; — *scp*, soie scapulaire (chète antérieur); — *scut*, scutellaires; — *st*, sternopleurale; — *stg*, stigmatique.

postalaires, la postérieure est plus robuste; une ou deux humérales, une faible et une forte; une posthumérale; deux notopleurales plus ou moins développées. Quatre soies scutellaires également développées ou deux scutellaires subapicales fortes et deux apicales ciliformes. Une soie propleurale, prothoracale ou prothoracique, parfois quelques cils satellites et une soie stigmatique (sauf *Scopeuma*), au moins une mésopleurale, cinq au plus; une, deux ou trois sternopleurales. Villosité fine, nulle sur les pleures, sauf chez les *Scatophaginæ*. Mésophragme très développé, parfois bombé et saillant; postscutellum bien visible, toujours petit. Pattes longues et grêles, velues, ciliées ou armées de macrochètes plus ou moins développés, parfois remplacés par des épines ou par des brosses de soies raides placées sur la partie antéro-interne des fémurs. Hanches I grandes, souvent jaunes; les hanches II et III grises; fémurs exceptionnellement très épaissis (*Bostrichopyga*), fémurs et tibias I nus ou couverts d'une longue villosité serrée en fourrure, indépendante des soies normales, exceptionnellement des encoches ou des denticulations (*Cosmetopus, Pogonota, Staegeria*, **figs. 31, 32, 36**); renflés ou déformés (*Okeniella*, **fig. 35**), tibias avec d'autres soies en dehors des soies apicales ou préapicales; tibias II grêles, munis de longues soies basales externes (*Staegeria*); tarses normaux, les antérieurs plutôt courts, habituellement sans ornementation spéciale. Griffes et pelotes médiocres, seulement bien développées chez les espèces zoophages. Ailes longues, à membrane épaisse, fortement irisée, exceptionnellement tachée (*Ernoneura*, **fig. 38**), couverte de microtriches serrés; brisure costale à l'apex de sc 1 peu visible ou nulle, négligeable dans tous les cas; ordinairement pas d'épine costale; 3[e] et 4[e] nervures (M1 et M2) plus ou moins divergentes à l'apex ou légèrement rapprochées (*Hydromyza, Scopeuma scybalarium*), ou la cellule apicale, limitée par ces nervures, rétrécie à l'apex (*Lasioscelus*, **fig. 33**), ou rétrécie à la base (*Scoliaphleps*, **fig. 15**); 4[e] nervure (M2 a+b) rectiligne, rarement sinueuse (*Cosmetopus*, **fig. 31**) ou envoyant vers M1 des prolongements ou des nervures transverses supplémentaires (*Pogonota*, **fig. 36**); transverses rectilignes ou peu courbées; cellules basales fermées antérieurement par les nervures *y* et *z* (**fig. 2**); 6[e] nervure (A1) prolongée au bord de l'aile, ou épaissie à la base et n'atteignant pas la marge postérieure; 7[e] nervure (A2) plus ou moins développée, toujours visible sous forme de pli. Cuillerons subégaux. — Abdomen souvent cylindrique, rarement aplati à la base (*Hydromyza*), plus ou moins allongé, formé de six segments prégénitaux, les deux premiers soudés comme d'habitude; premiers segments visibles normalement développés, munis de macrochètes marginaux, dressés ou non, noirs ou décolorés comme la pilosité du fond.

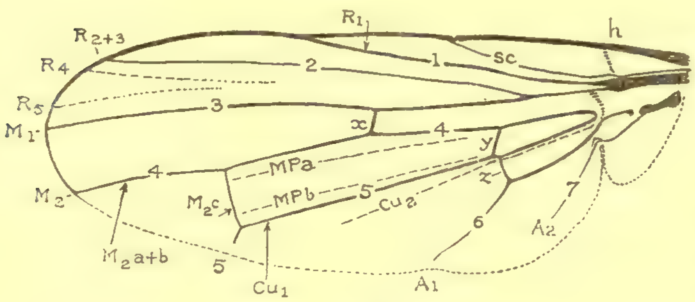


Fig. 2.

Aile d'un Scatophagide montrant la position des nervures. *A 1, 2*, anales; — *Cu 1*, cubitale antérieure (haute); — *Cu 2*, cubitale postérieure (basse); — *h*, humérale; — *M 1, 2, 2 a+b*, nervures médianes antérieures (hautes); — *M 2 c*, médiane transverse; — *MP a, b*, médianes postérieures (basses); — *R 1*, radiale antérieure (haute); — *R 2+3, R 4, 5*, radiales postérieures (basses); — *sc*, sous-costale; — *x*, transverse médiane; — *v*, transverse médiocubitale; — *z*, transverse cubito-anale.

F e m e l l e. — Extrémité de l'abdomen parfois comprimée latéralement, les derniers sternites plus ou moins développés (*Parallelomma, Norellia*) ou aplatis en lame tranchante et brillante, saillante (*Parallelomma*, **fig. 10**), inerme ou armée de spinules (*Myxocordylura*, **fig. 7**).

M â l e. — Segments abdominaux apicaux plus épais; sternite prégénital fendu ou non, à lobes latéraux dressés en bas ou étalé en bouclier et portant de longues soies pendantes, couchées ou frisées au bout (*Pogonota, Okeniella, Bostrichopyga*, **figs 34, 35 et 36**) ou les lobes dénudés et rabattus (*Trichopalpus, Acanthocnema, Lasioscelus*); parfois deux petits lobes plus ou moins épineux, dressés au centre,

entre les lobes latéraux plus épais (*Scopeuma*). Appareil copulateur plus ou moins développé suivant les espèces. Segment IX visible, en dessus seulement, par le tergite en bouclier; le sternite correspondant forme le « sternite génital ». Tergite X renflé dorsalement, profondément divisé sur la ligne médiane longitudinale qui est occupée par la membrane conjonctive. Le tergite X est prolongé en dessous par le forceps externe dont les branches, plus ou moins longues, sont parfois élargies et rabattues sur la face sternale (*Lasioscelus, Cochliarium*, **fig. 33**); le forceps interne (sternite X), à branches courtes, protège l'anus situé à sa partie supérieure. Le pénis est relié à son apodème et au sternite génital par la « theca » et la membrane basale; sur la theca, ou bulbe, s'accroche le paraphallus divisé lui-même en deux pièces latérales plus ou moins épaissies (*Cordylura*) et plus ou moins écartées de l'hypophallus qu'elles protègent.

Diptères errants, allotropes, phytophages, saprophages, coprophages ou zoophages, chassant et dévorant les petits insectes à téguments mous, communs ou très communs dans les endroits humides ou marécageux, sur les fleurs et les feuillages ou sur les excréments des grands Vertébrés (cf. Hobby, 1931). Plusieurs espèces sont exclusivement littorales.

PARASITES. — Les imagos portent souvent des larves de *Trombidium* ou de *Gamasus*, des Acariens divers : *Parasitus, Pediculoides, Holastopella, Alliphis*, etc. Le *Cordylura pubera* (L.) a été signalé comme hôte du *Mermis albicans* v. Siebold (von Linstow, 1898).

Le *Scatophaga* (*Scopeuma*) *merdaria* peut être attaqué par des Champignons (Phycomycètes Entomophthorinées) du genre *Empusa* (Giard, 1888).

RÉPARTITION GÉOGRAPHIQUE. — Les Scatophagides forment un groupe essentiellement septentrional, quelques rares représentants du genre *Scopeuma* vivent sous les tropiques.

L'ubiquiste *Scopeuma stercorarium* a été signalé de l'Afrique australe et il n'existe que trois ou quatre espèces du Nouveau-Monde qui dépassent au sud la frontière méridionale des Etats-Unis, une se trouve au Pérou et une autre en Colombie.

Au contraire de nombreuses espèces sont répandues dans toute la région holarctique..

ŒUFS. — Allongés, d'un blanc d'ivoire ou jaunâtres, renflés sur une face, aplatis sur l'autre qui présente deux bourrelets plus ou moins étendus et recourbés sur l'axe longitudinal. Coque lisse (*Phrosia*), ou couverte d'une réticulation hexagonale saillante et visible, surtout aux deux extrémités, laissant voir un tégument plus mince, favorable aux échanges gazeux nécessaires à l'embryon (*Cnemopogon, Cordylura, Scopeuma*) (**figs 11, 13, 21, 44**).

LARVES. — Corps cylindrique, rigide et nu. Pseudocéphalon petit et rétractile, crochets buccaux bien développés, organes sensoriels réduits comme chez les larves d'Anthomyiaires. Stigmates prothoraciques saillants en éventail, portant sur leur bord libre un certain nombre d'encoches ou de renflements perméables. Bourrelets locomoteurs de la face sternale plus ou moins développés ou couverts de spinules. Dernier segment abdominal tronqué, terminé par six ou huit tubercules charnus, portant des organes sensoriels. Stigmates postérieurs nus et libres, ou enfoncés dans une caverne stigmatique peu profonde, ou saillants et protégés par des cônes charnus ou chitineux (**fig. 44**).

Insectes zoophages, coprophages (*Scopeuma*), saprophages, phytophages et mineurs des feuilles ou des tiges des végétaux (*Chylizosoma, Clidogastra, Hydromyza*), peut-être parasites occasionnels de larves d'insectes phytophages (*Cnemopogon*).

GENRES ET ESPÈCES DOUTEUX

Un certain nombre de genres ou d'espèces ont été incorporés aux Scatophagides avec plus ou moins de raisons, par divers auteurs. On trouvera ci-dessous la liste des formes les plus importantes, avec les remarques suggérées par leur position. Les espèces décrites par J. W. Zetterstedt dans sa « *Monographia Scatophagarum Scandinaviæ* », publiée dans les Annales de la Société entomologique de France (tome IV, 1835, p. 175-189) et qui se rapportent généralement à la famille des Psilides, n'ont pas été mentionnées.

1. **Ambopogon hyperboreus** Greene, Proceed. entom. Soc. Wash., Vol. 21, p. 126-129, figs. (1919).
C'est un Piophilide du genre *Amphipogon*, probablement l'*A. spectrum* Wahlberg.

2. **Chaetura rufipes** Macquart, Dipt. exot., Vol. 4, 2e partie, p. 244, pl. 25, fig. 3 (1850).
C'est un Muscide du genre *Cænosia*. Urugay (Muséum).

3. **Cleigaster longicornis** Macquart, Dipt. exot., Vol. 2, 3e partie, p. 340 (183), pl. 26, fig. 3 (1843).
Sénégal (Muséum et coll. Macquart). La collection du Muséum ne conserve plus qu'un débris innommable qui se rapporte peut-être à un Cœnosiine. M. van Emden (1941 : p. 254) croit que c'est un *Anaphalanthus pennatus* Loew.

4. **Cordylura aricina** Zetterstedt, Dipt. Scand., Vol. 5, p. 2034 (1846);
Becker, Katal., Vol. 4, p. 1; Sack, Cordyl., p. 18 (1937).
C'est un *Hylemyia* (*Phorbia, Adia* Schnabl) *teste* Ringdahl, Entom. Tidskr., Vol. 57, p. 159 (1936). La description de M. P. Sack, (l. c.) est la traduction de la diagnose latine de Zetterstedt.

5. **Cordylura geniculata** Macquart, Dipt. exot., Vol. 4, 2e partie, p. 244, pl. 25, fig 2 (1850).
Amérique, Matto Grosso (de Castelnau, 12. 47) (Muséum). En mauvais état. C'est très probablement un Muscide du genre *Phyllogaster* (Cœnosiine).

6. **Cordylura qualis** Say, Journ. Acad. Sc. Phil., Vol. 6, p. 176 (1830); Osten-Sacken, Catal., p. 173.
Indiana. N'est probablement pas un *Cordylura*, *teste* Aldrich, Catal. N. Amer. Dipt., p. 566 (1905).

7. **Cordylura rufina** van der Wulp, Biol. centr. Amer., Dipt., Vol. 2, p. 349 (1897).
Mexique. Correspond probablement au *Scatophaga reses* Giglio-Tos (Boll. R. Univ. Torino, Vol. 8, p. 158 et Ditt. del Messico, Vol. 34, p. 34), qui provient également du Mexique. Van der Wulp soupçonne ce *reses* d'être un *Cordylura* (cf. Aldrich, Catal. N. Amer. Dipt., p. 569, 1905).
Dans le doute ces deux noms (*rufina* et *reses*) n'ont pas été mentionnés dans les listes suivantes.

8. **Eugenacephala salsa** Johnson, Occ. Pprs Boston Soc. N. H., Vol. 5, p. 22, figs (1922) et Vol. 7, p. 243 (1925); id., Biol. Survey Mt. Desert Region, I, p. 213 (1927); Procter, Biol. Survey Mt. Desert Région, Pt. VII, p. 414 (1946).
= *rufipes* Curran, Canad. Entom., Vol. 57, p. 25 (1925); Johnson, Psyche, Vol. 36, p. 145 (1929).
Nord des Etats-Unis d'Amérique. Labrador.
C'est l'*Orygma luctuosa* Meigen. — Séguy, Faune de France, Vol. 28, p. 310 (1934), *teste* Sabrosky, Canad. Entom., Vol. 81, p. 303 (1949).

9. **Eupteromyia** Bigot, Revue et Mag. de Zoologie (Guérin), no 7, p. 6 (1859).
« G. Sapromyzæ proximum. Oblonga. Alis paulo angustis; abdomine valde longioribus. Capite hemispherico, thorace vix latiore. Facie et epistomate proeminentibus. Antennis, articulo tertio secun-

do non duplo longiore, ovali; apice, paulo attenuato. Stylo longe ciliato, ciliis inferis, brevibus. Abdomine ovali, subpetiolato, thorace parum breviore, bis tribus segmentato. Tibiis intermediis, apice, spinis longiusculis instructis » (Bigot).

Typus generis. — *E. trivittata* Bigot

E. trivittata Bigot, Rev. et Mag. Zool., n° 7, p. 6 (1859) et Catal. Dipt. Orient. Reg., Journ. Asiat. Soc. Bengal, vol. 61, n° 2, p. 207 (1892).

« Nigra, fronte, facie antennisque testaceis. Epistomate nitido, violaceo. Genis nigris. Thorace testaceo pallide trivittato, vitta intermedia usque ad scutelli apicem prolongata. Sterno, ventreque basi, testaceis. Pedibus brunneis, basi testaceis. Alis brunneo-nigris, margine interiore albido. — Long. 11 millim. » (Bigot).

Birmanie.

10. **Gymnomera Pinocheti** Brèthes.

D'après J. Brèthes il n'est pas certain que cette espèce soit bien à sa place dans le genre *Gymnomera*. Elle a cependant été maintenue dans la liste avec un point de doute.

11. **Orthostylum** Macquart, Dipt. exot., Suppl., Vol. 4, 2, p. 245 (272) (1850);

Becker, Katal. Pal. Dipt., Vol. 4, p. 20 (1905).

« Trompe et palpes retirés dans la cavité buccale. Face inclinée en arrière; épistome saillant, sans soies. Front du mâle large, saillant, nu. Yeux ovales, nus. Antennes couchées, n'atteignant pas l'épistome; les deux premiers articles fort courts; troisième prismatique, six fois plus long que le deuxième; style nu, assez épais jusqu'au milieu, droit, formant un angle droit avec le troisième article. Thorax sans soies. Abdomen assez court, recourbé, de six segments, terminé en massue. Pieds nus. Cuillerons petits. Ailes : nervure médiastine double, les transversales assez distantes, la deuxième située au delà du tiers entre la première et l'extrémité.

» La réunion de ces caractères nous détermine à former ce genre, qui se rapproche des Cordylures par la conformation de l'abdomen. Le nom générique exprime le style droit des antennes». (J. Macquart).

Type du genre. — *Orthostylum rufipes* Macquart.

O. rufipes Macquart, Dipt. exot., Suppl. 4, 2, p. 246 (273) (1850).

« Flavido-cinereum. Antennis fuscis, basi rufis. Pedibus flavis.»

« Long. 1 1/2 l. (3,40 millim.). Face jaune, à duvet blanc. Front à bande testacée et côtés blanchâtres. Antennes : les deux premiers articles fauves; troisième d'un brun noirâtre. Thorax d'un gris noirâtre à lignes brunes peu distinctes. Abdomen d'un gris également jaunâtre. Pieds jaunes, tarses bruns. Ailes claires, un peu jaunâtres; nervures pâles.» (Macquart).

Egypte.

12. **Sargella** Robineau-Desvoidy, Myodaires, p. 674 (1830).

« Antennes assez longues, obliques; le troisième article triple du second, prismatique et assez épais : chète nu.

» Front allongé; face très oblique; cuillerons manifestes; corps allongé, cylindrique, à teintes noires.

» Le corps effilé, cylindrique et porté sur de longues pattes, nous offre la véritable image de ces *Sargus* verdoyants qui courent sur la surface de l'eau. La forme des antennes m'engage à placer la Sargelle dans la présente section; mais ses cuillerons un peu développés pourraient tendre à en faire un genre de la tribu des Aricines littorales ». (Robineau-Desvoidy).

Type du genre. — *Sargella cylindrica* R.-D.

S. cylindrica Robineau-Desvoidy, Myodaires, p. 675 (1830).

« Longueur, 3 lignes. Face blanchâtre, avec les côtés blancs : front noir, mais jaune au sommet; corselet noir; abdomen cylindrique, d'un noir brillant; pattes longues, noires, avec les genoux et les tibias jaunes; ailes claires, sans tache.

» J'ai trouvé cette espèce, dès le premier printemps, parmi des plantes aquatiques à Saint-Sauveur ». (Robineau-Desvoidy).

13. **Scatophaga calcarata** Macquart, Dipt. exot., Vol. IV, 2ᵉ partie, p. 246, pl. 25, fig. 5 (1850).

Ce Diptère est en réalité un *Hylemyia* dont la description peut être complétée et rectifiée comme il suit. Il doit être ajouté à la liste des *Hylemyia* (Genera Insectorum, fasc. 205, p. 81).

Hylemyia calcarata (Macquart). — (**fig. 3**).

Type ♂. — Tête rousse, longuement trapézienne en profil, espace interoculaire plus large que l'œil vu de face; des soies croisées, quatre microchètes postocellaires, six soies orbitales, les trois supérieures courbées en dehors; quelques microchètes au niveau de la base des antennes. Joues deux fois plus larges que l'antenne, péristome aussi large que l'œil; cinq ou six soies péristomales faibles, vibrisses médiocres, trois vibrissales. Trompe normale; palpes en baguettes jaunes, longuement ciliés. Antennes rousses, troisième article brun, subégal aux deux précédents; chète à pubescence microscopique, pratiquement nu (fig. 3). — Corps gris, incisures étroitement roussâtres; acrosticales piliformes, irrégulières, disposées en deux rangées, préscutellaires chétiformes; cinq soies dorsocentrales (2+3); scutellum avec quelques cils discaux dressés, quatre macrochètes marginaux. Préalaire aussi forte que la première dorsocentrale présuturale. Cinq mésopleurales, trois sternopleurales (2+1). Pattes rousses; fémurs I largement noirâtres, genoux jaunes; fémurs II avec une rangée interne de spinules disposés en peigne sur la moitié apicale du membre; tibias II avec deux chétules postérieurs et deux soies externes plantées au même niveau, à la partie moyenne; tibias III avec deux paires de soies externes, un fort aiguillon sinueux planté au niveau de l'union du tiers moyen et du tiers apical de la face externe, quelques spinules satellites à la base de cet aiguillon, sur la face postérieure du tibia (**fig. 3**). Balanciers jaune-citron. Ailes légèrement brunies, épine costale longue. — Appareil copulateur petit, globuleux; forceps externe et interne à branches épaisses, courtes et arrondies, couverts de longs cils pendants, un peu frisés.

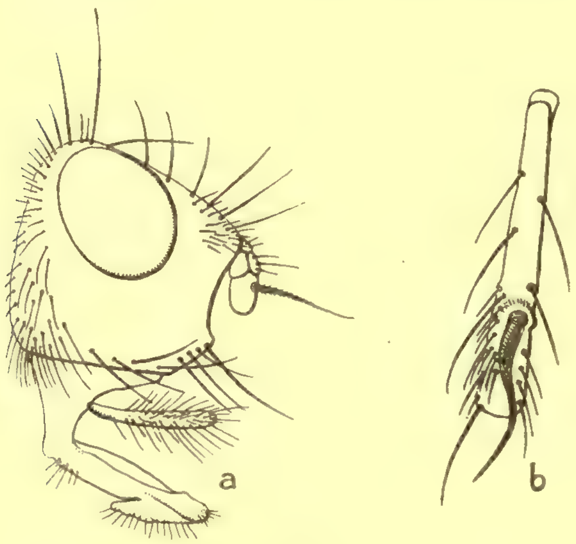


Fig. 3.

Hylemyia calcarata Macquart mâle.
a. tête vue de profil; — *b*. tibia postérieur, face externe × 40

Long. du corps : 5 mm., de l'aile : 5,5 mm.

Chili (M. Pissis), 124 : 38 (Museum, Paris).

14. **Scatophaga ceparum** Westwood, Ann. Mag. Nat. Hist., Vol. 7, p. 425 (1834).

Correspond au Muscide *Hylemyia antiqua* (Meigen). Ce nom doit être ajouté à la liste des synonymes de cette espèce (cf. Séguy, Muscides, Genera Insectorum, fasc. 205, p. 76, (1937).

15. **Scatophaga formosa** Wiedemann, Ausser. Zweifl. Insecten, Vol. 2, p. 447 (1830).

= *Dryomyza maculipennis* Macquart. Dipt. exot., suppl. 4, p. 273, 1 (1850); *D. gigas* Vollenh., Versl. meded. K. Akad. Wetensch , Vol. 15, 18, p. 12, fig. 7, qui habite les Indes orientales et le Japon, est un Dryomyzide du genre *Eggizoneura* (Wulp, Catal., p. 163).

16. **Scatophaga saniosa** Westring, K. Vet. Akad. Handlgr. Stockh., p. 51 (1814).

C'est un Muscide (*Fannia*).

17. **Tapigaster** Macquart (*emend.* Bezzi). — *Tapeigaster* Macquart, Dipt. exot., 2e supplém., p. 102 (1846); Bezzi, Austral. Zool., Vol. 3, p. 72 (1923); Séguy. Faune de France, Vol. 28, p. 648 (1934); — *Sciomyzoptera* Hendel, Deutsche entom. Zs., p. 46 (1917).

Les espèces du genre, exclusivement australiennes, ont été placées successivement parmi les Sciomyzides, près des Dryomyzes par Macquart et parmi les Scatophagides par M. Bezzi, qui en fait une sous-famille spéciale, celle des *Tapigasterinæ*. J'ai moi-même adopté autrefois les idées de Bezzi à ce sujet (Faune de France, Vol. 28, p. 648. 1934). M. J. R. Malloch (Ann. Mag. N. H., (10), vol. 8, p. 425, 1931) revient à l'opinion de Macquart et range les Tapigaster parmi les *Neottiophilidæ*. F. Hendel, lors de la description du genre *Sciomyzoptera*, est embarrassé pour lui assigner une place systématique; il le croit voisin des *Orygma*.

Les caractères du genre *Tapigaster*, tels qu'ils sont résumés ici, montrent que les espèces du genre sont plus voisines de celles des *Neottiophilidæ* que de celles des autres familles d'Acalyptères, et qu'il faut se ranger à l'opinion de M. J. R. Malloch.

Caractères. — Tête arrondie, yeux courtement ovalaires. Plaque occipitale courte, étendue sur la moitié de la longueur de la bande médiane frontale. Deux soies orbitales supérieures réclinées, une ou deux inférieures proclinées, verticales interne et externe rapprochées à la base, convergentes à l'apex : verticales postérieures présentes. Face courte, épistome saillant. Occiput gonflé, partie supérieure à soies fortes, dressées, villosité inférieure fine. Vibrisses fortes. Trompe robuste, à labelles élargis. Palpes non dilatés, jamais aplatis, sans soie terminale. Antennes courtes ou moyennes, étendues sur presque toute la longueur de la face; troisième article ovalaire; chète allongé, à pubescence courte, ou nu. — Mésonotum bombé, scutellum triangulaire; une soie humérale, trois supraalaires (1+2), deux dorsocentrales, quatre scutellaires. Mésopleure nu, une sternopleurale placée au milieu du bord supérieur du sternopleure. Pattes épaisses, tous les fémurs avec deux rangées d'épines fortes sur la face interne de la moitié apicale; tibias avec une soie préapicale, tibias intermédiaires avec deux éperons. Ailes : première nervure longitudinale (R1) nue. Aile : costale inerme ou courtement épineuse sur son tiers apical; membrane nue et brillante. Cuillerons très petits, négligeables ou nuls. — Abdomen court, largement ovalaire, cinq tergites dépourvus de macrochètes. — Femelle : ovipositeur avec deux lamelles terminales; mâle : hypopyge épais, ovalaire, parfois tuberculé en dessous. Long. 6-8 millim.

Types des genres. — *Tapeigaster*, type : *T. annulipes* Macquart. — *Sciomyzoptera*, type : *S. annulata* Hendel.

LISTE DES TAPIGASTER

a. *T. annulipes* Macquart, Dipt. exot., 2e suppl., p. 102. — Australie.
annulata Hendel, Deutsche entom. Zs., p. 47 (1917).
(*Sciomyzoptera*); *teste* Bezzi, Austr. zool., Vol. 3, p. 72 (1923).

b. *T. argyrospila* Bezzi, Austral. Zool., Vol. 3, p. 77 (1923). — Australie.

c. *T. luteipennis* Bezzi, l. c., p. 76 (1923). — Australie.

d. *T. marginifrons* Bezzi, l. c., p. 74 (1923). — Australie.

18. **Volusia** Robineau-Desvoidy, Myodaires, p. 674 (1830).

« Antennes raccourcies, le troisième article cylindrique; chète tomenteux. Front et face très resserrés; face très oblique; corps allongé, d'un beau noir ».

Type du genre. — *Volusia nitida* Robineau-Desvoidy.

Volusia nitida Robineau-Desvoidy, l. c., p. 674 (1830).

« Longueur, 3 lignes 1/2 à 4 lignes. Tout le corps d'un beau noir luisant; face, côtés du front, vertex, argentés; les côtés du corselet glacés d'un cendré moiré; pattes longues, jaunes, avec les tarses noirs, et un peu de noir au-dessus des genoux antérieurs.

» Cet insecte est excessivement rare; je n'en possède qu'un individu trouvé parmi des plantes riveraines à Saint-Sauveur » (Robineau-Desvoidy).

Incorporé avec doute dans la famille des Scatomyzides par Th. Becker dans son Catalogue, le *Volusia nitida* correspond au *Tanypeza longimana* Fallén (Séguy, Faune de France, Vol. 28, p. 216, 1934; *vide etiam* Hendel, Wien. ent. Ztg., Vol. 29, p. 308, 1910).

TABLEAU DES SOUS-FAMILLES

1 (2). *Fémurs I avec une double rangée de longues épines sur la face interne; tibias I avec des chètes-épines en rangée interne simple ou double. Soies propleurales ciliformes ou nulles* . . . . . . NORELLIINÆ.

2 (1). *Fémurs I et tibias I avec tout au plus un seul rang de soies ou de chètes-épines dressés sur la face interne.*

3 (4). *Propleure avec une ou plusieurs soies plus ou moins développées. Si les soies propleurales sont piliformes ou nulles, la chétotaxie mésonotale est lacunaire, ciliforme ou nulle. De une à cinq paires de soies dorsocentrales (0+1, 0+2, 0+3, 1+3, 2+3); une, deux ou trois soies sternopleurales. Scutellum avec deux ou quatre soies marginales ou latérales. Ailes arrondies à l'apex, parfois raccourcies.*

— *Face allongée; palpes minces ou filiformes plus ou moins dilatés à l'apex, rarement élargis, avec ou sans longue soie apicale. Antennes bien développées, plutôt longues; chète nu, pubescent ou plumeux. Espèces plutôt robustes, à chétotaxie bien développée* . . . . CORDYLURINÆ.

— *Face courte. Palpes courts, filiformes, dépourvus de macrochète ou de soie apicale. Antennes courtes, chète nu, tout au plus pubescent* . . . . DELININÆ.

4 (3). *Propleure sans soies ou macrochètes dressés, exceptionnellement quelque pilosité ciliforme ou piliforme. Une (ou deux) soies sternopleurales ou non, dans ce cas les sternites sont munis d'une longue pilosité. Mésonotum avec cinq ou six soies dorsocentrales (2, 3+3), ou les dorsocentrales moins nombreuses, mais les palpes sont élargis. Quatre soies scutellaires au moins. Ailes normales, plutôt allongées, ou courtes, mais l'abdomen étroit et long.*

— *Tête élargie. Palpes élargis à l'apex, foliacés ou cochléariformes. Mésonotum aplati et la chétotaxie lacunaire, ou le mésonotum normal, mais la pilosité non serrée en fourrure* . . . . HYDROMYZINÆ.

— *Tête arrondie, non particulièrement élargie. Palpes filiformes, ou faiblement dilatés, rarement rubanés. Mésonotum bombé, la pilosité souvent développée en fourrure* . . SCATOMYZINÆ.

TABLEAUX DES GENRES

Les caractères donnés dans les tableaux ci-dessous n'ont pas toujours été répétés intégralement dans les diagnoses des genres que l'on trouvera dans les catalogues qui suivent.

Espèces avec trois soies sternopleurales . . . . TABLEAU A.
Espèces avec deux soies sternopleurales. . . . . TABLEAU B.
Espèces avec une soie sternopleurale.
— *Ptéropleure cilié* . . . . TABLEAU C.
— *Ptéropleure nu* . . . . TABLEAU D.

TABLEAU A

Trois soies sternopleurales.

1 (2). *Scutellum avec six soies marginales. Palpes avec un macrochète apical* . . . . PLETHOCHÆTA Coquillett.

2 (1). *Scutellum avec quatre soies marginales. Palpes sans macrochète apical.*

3 (4). *Aile : première longitudinale (R1) sétuleuse sur le tiers apical.*
— *Scutellum : quatre soies subégales.* . . . . ORTHOCHÆTA Becker.
— *Scutellum : deux marginales robustes, deux apicales ciliformes* . . . . CNEMOPOGON Rondani.

4 (3). *Aile : première longitudinale nue.*

5 (6). *Fémurs antérieurs avec de fortes soies plantées sur la face antérieure. Propleure cilié.* . . . . AMAUROSOMA Becker.

6 (5). *Fémurs antérieurs sans fortes soies sur la face antérieure.*

7 (8). *Palpes courts, normaux.*
— *Antennes : troisième article anguleux à l'apex antérieur; chète coudé* (fig. 18) . . . . GONARCTICUS Rondani.
— *Antennes : troisième article arrondi ou obtusément anguleux à l'apex; chète non coudé* . . . . MESAMYIA Malloch.

8 (7). *Palpes longs ou très longs. Chète antennaire non coudé.*
— *Yeux à peine plus longs que larges. Antennes prolongées jusqu'à l'épistome, arrondies à l'apex antérieur. Palpes minces à la base* (fig. 19a). *Abdomen très court* . . . SPATHEPHILUS Becker.
— *Yeux ovalaires, moitié plus longs que larges. Antennes n'atteignant pas l'épistome, anguleuses antérieurement. Palpes élargis à la base* (fig. 19b). . . . . PSELAPHEPHILA Becker.

TABLEAU B

Deux soies sternopleurales.

1 (2). *Antennes : troisième article arrondi à l'apex* (fig. 16).
Deux soies scutellaires marginales latérales.
— *Deux soies dorsocentrales postérieures* . . . . . . DELINA Rob. Desv.
— *Trois soies dorsocentrales postérieures* . . . . . . HEXAMITOCERA Becker.

2 (1). *Antennes : troisième article arrondi à l'apex* (fig. 19 et 28). *Quatre soies scutellaires.*

3 (4). *Chète antennaire épaissi sur le quart basal, son pénultième segment court. Antennes n'atteignant pas l'épistome. Palpes dilatés* (fig. 28) . . . . TRICHOPALPUS Rondani. (s. g. CHAETOSA Coq.)

4 (3). *Chète antennaire épaissi sur la moitié basale, son pénultième segment beaucoup plus long que large.*

— *Plusieurs vibrisses ou vibrissales. Antennes prolongées jusqu'à l'épistome; chète coudé. Palpes minces* . . . . . GONATHERUS Rondani.

— *Une seule vibrisse. Antennes n'atteignant pas l'épistome; chète non coudé. Palpes normaux élargis sur toute leur longueur* (fig. 19) . . . . PSELAPHEPHILA Becker.

TABLEAU C

Une soie sternopleurale ou non. Ptéropleure cilié.

1 (2). *Tibias I : face interne avec de nombreux sétules noirs* . . . . ALLOMYELLA Malloch.

2 (1). *Tibias I : sans sétules noirs sur la face interne.*

3 (4). *Aile : première nervure (R1) sétuleuse apicalement; sixième nervure non prolongée à la marge* . . . . DASYPLEURON Malloch.

4 (3). *Première nervure nue.*

5 (6). *Aile avec plusieurs taches brunes. Pas de soies sternopleurales* (fig. 38) . . . . ERNONEURA Becker.

6 (5). *Aile non tachée. Une soie sternopleurale.*

— *Soie propleurale longue et forte. Chète antennaire court, plumeux sur toute sa longueur* . . . . MEGAPHTHALMOIDES Ringdahl.

— *Soie propleurale faible ou nulle. Chète antennaire allongé, nu, pubescent ou plumeux* (fig. 43) . . . . SCOPEUMA Meigen.

TABLEAU D

Une soie sternopleurale. Ptéropleure nu.

1 (8). *Tête, en profil, nettement plus longue que haute; face très oblique.*

2 (3). *Chète antennaire à pubescence très fine (pratiquement nu)* (fig. 22) COCHLIARIUM Becker.

3 (2). *Chète antennaire plumeux.*

4 (5). *Soie stigmatique forte.* . . . . PARATIDIA Malloch.

5 (4). *Soie stigmatique nulle.*

6 (7). *Antenne : face externe du troisième article avec une soie longue et fine, plantée près de l'insertion du chète* (fig. 6) . . . . . ACICEPHALA Coquillet.

7 (6). *Troisième article antennaire sans soie supplémentaire.* . . . . . PSEUDACICEPHALA Malloch.

8 (1). *Tête plus haute que large.*

9 (10). *Tête triangulaire en profil, face très oblique. Palpes en massue élargie* (fig. 7) . . . . MIXOCORDYLURA Hendel.

10 (9). *Tête à profil quadrangulaire, aussi haute que longue; face médiocrement oblique.*

11 (12). *Soies orbitales très courtes, espace interoculaire pratiquement nu* (fig. 39) . . . . HYDROMYZA Fallén.

12 (11). *Soies orbitales longues.*

13 (14). *Tibias I avec une épine courte et forte à l'apex de la face interne, ou la face interne avec une série longitudinale de spinules courtes disposées en peigne* (fig. 37) . . . . ACANTHOCNEMA Becker.

14 (13). *Tibias I sans épine apicale interne.*

15 (18). *Fémurs et tibias I avec de fortes soies plantées sur la face antéro-interne.*

16 (17). *Fémurs I avec une seule rangée de fortes soies. Antennes longues* (fig. 11) . . . . PHROSIA Rob.-Desv.

17 (16). *Fémurs I avec une double rangée de fortes soies ou d'épines antéro-internes. Antennes courtes.*

— *Aile : sixième nervure (A1) prolongée en pli au bord de l'aile. Tibia I avec deux rangées internes de longues épines* (fig. 4) . . . . NORELLISOMA Hendel.

— *Aile : sixième nervure courte, tronquée, son extrémité largement séparée du bord de l'aile. Tibia I avec une rangée de quatre longues épines dressées* (fig. 5) . . . . . . NORELLIA Rob.-Desv.

18 (15). *Fémurs et tibias I sans fortes soies.*

19 (20). *Fémurs I avec des apophyses, épineuses ou non, dressées sur la face interne. Aile : quatrième nervure longitudinale sinueuse à l'apex* (fig. 31) . . . . COSMETOPUS Becker.

20 (19). *Non et non.*

21 (46). *Soie propleurale toujours présente, habituellement une soie stigmatique.*

22 (31). *Palpes longs et minces, munis d'une longue soie apicale.*

23 (24) *Aile : troisième nervure sinueuse* (fig. 15) . . . . SCOLIAPHLEPS Becker.

24 (23). *Aile : troisième nervure rectiligne.*

25 (26). *Soie stigmatique forte* (fig. 13). . . . . CORDYLURA Fallén.

26 (25). *Soie stigmatique faible, ou piliforme, ou nulle.*

27 (28). *Yeux non émarginés postérieurement* . . . . NEOGYMNOMERA Malloch.

28 (27). *Yeux avec une légère émargination sur la moitié postéro-inférieure.*

29 (30). *Nervure anale atteignant pratiquement le bord de l'aile* (fig. 8).

— *Quatre scutellaires* . . . . ACHÆTELLA Malloch.

— *Deux scutellaires* . . . . LEPTOPA Zetterstedt.

30 (29). *Nervure anale n'atteignant pas le bord de l'aile.*

— *Chète antennaire plumeux ou très longuement pubescent* (fig. 10) . . . . PARALLELOMMA Becker.

— *Chète pubescent* (fig. 9) . . . . CHYLIZOSOMA Hendel.

31 (22). *Palpes plus ou moins élargis, sans soie apicale saillante ou dressée.*

32 (33). *Antennes très épaisses, prolongées jusqu'au bord du péristome* (fig. 29) ACEROCNEMA Becker.

33 (32). *Non.*

34 (35). *Joues plus larges que la moitié de la hauteur de l'œil. Face légèrement oblique et plus courte que le front. Quatre scutellaires. Soies intraalaires nulles.*

— *Palpes étroits. Aile : nervures 3 et 4 non courbées postérieurement. 2 ou 3 dorsocentrales* (fig. 24). . . . . GYMNOMERA Rondani.

— *Palpes dilatés à l'apex. Nervures 3 et 4 courbées postérieurement. 5 dorsocentrales* (fig. 32). . . . . STAEGERIA Rondani.

35 (34). *Joues habituellement moins larges que le tiers de la hauteur de l'œil. Face aussi longue que le front ou presque.*

36 (37). *Fémurs épaissis, tibias I courbés chez le mâle* (fig. 34) . . . BOSTRICHOPYGA Becker.

37 (36). *Non et non.*

38 (41). *Aile : première nervure sétuleuse dans la moitié apicale.*

39 (40). *Scutellum avec six soies* . . . . BUCEPHALINA Malloch.

40 (39). *Quatre soies scutellaires.*

— *Palpes étroits* (fig. 12) . . . . MEGOPHTHALMA Becker.

— *Palpes élargis et spatulés* . . . . CORDYLURELLA Malloch.

41 (38). *Aile : première nervure nue.*

42 (43). *Nervure anale n'atteignant pas le bord de l'aile.*

— *Antennes : troisième article moins de trois fois aussi long que large*. . . . . CORDYLURELLA Malloch.

— *Antennes : troisième article quatre fois aussi long que large* (fig. 14) . . . . MICROPSELAPHA Becker.

43 (42). *Nervure anale prolongée jusqu'au bord de l'aile* (fig. 13).

44 (45). *Soies acrosticales nulles* . . . . CORDYLURA Fallén.

45 (44). *Deux rangées de soies acrosticales au moins.*

— *Deux rangées de soies acrosticales*. . . . . OPSIOMYIA Coquillett.

— *Plus de deux rangées de soies acrosticales* . . . . . CERATINOSTOMA Meade.

46 (21). *Soies propleurale et stigmatiques nulles.*

47 (56). *Antenne : troisième article anguleux à l'apex antérieur* (fig. 27).

48 (49). *Soies acrosticales piliformes disposées en plusieurs rangées* . . . SPATHIOPHORA Rondani.

49 (48). *Soies acrosticales disposées en deux ou quatre rangées.*

50 (51). *Tibias I sans sétules internes.*

— *Palpes en forme de cuiller, rétrécis basalement* . . . . PSEUDOPOGONOTA Malloch.

— *Palpes non fortement rétrécis à la base* (fig. 28) . . . TRICHOPALPUS Rondani.

51 (50). *Tibias I : face interne armée de sétules noirs réunis en série plus ou moins serrée.*

52 (53). ♂. *Ailes émarginées entre l'apex des quatrième et cinquième longitudinales* (fig. 30) . . . . PLEUROCHÆTA Becker.

53 (52). ♂. *Ailes non émarginées.*

54 (55). *Prosternum nu.* ♂. *Ailes : des transverses supplémentaires entre les troisième et quatrième nervures longitudinales* (fig. 36) . . POGONOTA Zetterstedt.

55 (54). *Prosternum cilié.*

— ♂. *Ailes : bord costal avec une série de longs cils courbés sur la section comprise entre l'apex de sc et R1* (fig. 35) OKENIELLA Hendel.

— ♂. *Ailes normales, parfois un court rameau récurrent à l'apex de R2+5*. . . . . OKENINA Malloch.

56 (47). *Antenne : troisième article arrondi apicalement.*

57 (58). *Mésopleure cilié sur la plus grande partie de sa surface.*

— *Soies propleurales nulles. Péristome à soies faibles mais distinctes des soies vibrissales* (fig. 43) . . . . . . Scopeuma Meigen.

— *Soies propleurales plus ou moins développées, mais toujours distinctes. Soies péristomales disposées en rangée continue* (fig. 42) . . . . Scatomyza Fallén.

58 (57). *Mésopleure plus ou moins largement dénudé antérieurement.*

59 (60). *Aile : troisième et quatrième longitudinales très rapprochées à l'apex* (fig. 33). Lasioscelus Becker.

60 (59). *Troisième et quatrième longitudinales non rapprochées* (fig. 26).

61 (62). *Tibias I avec une rangée de spinules courtes étendue sur toute la longueur de la face interne* . . . . Microprosopa Becker.

62 (61). *Tibias I sans spinules rangées en série interne.*

63 (66). *Aile : nervure anale longue, atteignant pratiquement le bord de l'aile* (fig. 8).

64 (65). *Deux soies scutellaires* . . . . Leptopa Zetterstedt.

65 (64). *Quatre soies scutellaires.*

— *Pas de verticales postérieures* . . . . Achætella Malloch.

— *Verticales postérieures bien développées* . . . . . . Coniosternum Becker.

66 (63). *Aile : nervure anale courte, n'atteignant pas le bord de l'aile* (fig. 10)

— *Chète antennaire plumeux ou cilié* . . . . Parallelomma Becker.

— *Chète antennaire pubescent* . . . . Chylizosoma Hendel.

Subfam. NORELLIINÆ

Caractères. — Yeux ronds. Occiput gonflé, partie supérieure à soies fortes, dressées; villosité inférieure longue et fine, plus ou moins touffue et pendante. Face courte, épistome non ou peu saillant, une vibrisse. Trompe épaisse; palpes filiformes, sans soie apicale manifeste. Antennes courtes : apex du troisième article arrondi, atteignant la moitié de la hauteur de la face; chète cilié, velu ou non. — Thorax : soie propleurale piliforme; soie stigmatique avortée. Fémurs antérieurs et souvent les tibias correspondants armés d'une double rangée de fortes soies ou d'épines. Ailes : nervure *R1* dénudée à la face supérieure ou portant seulement quelques cils isolés.

Diptères à corps nu, étroit et allongé, roux, jaune ou noir à pruinosité grise ou blanchâtre plus ou moins épaisse.

TABLEAU DES GENRES

— *Aile : sixième nervure* (*A1*) *prolongée en pli au bord de l'aile* (fig. 4). *Tibias antérieurs avec deux rangées internes de longs chètes-épines* . . . . 1. Norellisoma Hendel.

— *Aile : sixième nervure courte, tronquée, son extrémité largement séparée du bord de l'aile* (fig. 5). *Tibias antérieurs avec une rangée de quatre longs chètes-épines dressés* . . . . 2. Norellia Robineau-Desvoidy

1. Genus NORELLISOMA Hendel

Norellisoma Hendel, Wien. ent. Ztg., Vol. 29, p. 308 (1910); Stackelberg, Mouches de l'URSS, p. 492 (1933); Séguy, Faune de France, Vol. 28, p. 652 (1934); Ringdahl, Entom. Tidskr., vol. 57 p. 165 (1936); Sack, Cordyl., p. 66 (1937).

Norellia auct. (*nec* Robineau-Desvoidy). — Becker, Katal. Pal. Dipt., vol. 4, p. 13 (1905); Yerbury, Entom. Mag., vol. 36, p. 199 (1900).

Caractères généraux. — Tête trapézienne en profil, un peu allongée; yeux ronds, quatre ou six paires de soies orbitales. — Thorax : soie scapulaire bien développée; soies acrosticales microscopiques ou nulles, sauf la paire préscutellaire piliforme; quatre ou cinq soies dorsocentrales (2+2-3); la première présuturale et la rétrosuturale antérieure plus faibles; une soie humérale, une présuturale; deux supraalaires : l'antérieure plus faible; deux postalaires; une ou deux mésopleurales, une sternopleurale. Scutellum avec deux ou quatre soies : deux préapicales robustes, apicales piliformes. Pattes antérieures avec une ciliation interne robuste; tibias antérieurs avec deux rangées internes de longs chètes-épines; pattes intermédiaires et postérieures à soies plus faibles. Aile : sixième nervure prolongée en pli jusqu'au bord. Mâle : appareil copulateur épaissi et renflé (**fig. 4**).

Long. 6-10 mm.

Type du genre. — *Cordylura nervosa* Meigen.

Répartition géographique. — Région paléarctique.



Fig. 4.
Norellisoma spinimanum (Fallén), à droite profil du mâle × 12; — à gauche, oviscapte de la femelle × 15.

LISTE DES ESPÈCES

1. *N. alpestre* (Schiner), F. A., Vol. 2, p. 6 (1864) [*Norellia*]; Becker, Berlin. entom. Zs., Vol. 39, p. 127, pl. 9 (1894) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905) [*Norellia*]; Wingate, Durham Dipt., p. 302 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Milan, Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 653 (1934); Sack, Cordyl., p. 67, pl. 5 (1937). — Alpes.
   Bertei Rondani, Prodr., Vol. 7, Scatophag., p. 7 (1866) [*Norellia*].
2. *N. armipes* (Meigen), System. Beschr., Vol. 5, p. 234 (1826) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 6 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 127 (1894) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905); Meade, Entom. mon. Mag., p. 173 (1899); Wingate, Durham Dipt., p. 302 (1906); Bezzi, Bull. — Europe, Sibérie, Afrique sept.

Soc. entom. ital., A, Vol. 39, p. 121 (1908); Séguy, Faune de France, Vol. 28, p. 653 (1934); Sack, Cordyl., p. 67 (1937).
flava von Röser, Württemb. Corrbl., p. 59 (1840) [*Cordylura*].
flavicauda Meigen (*nec* Macquart), System. Beschr., Vol. 6, p. 235 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 384 (1835) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 127 (1894) et Acta Soc. scient. Fennicæ, p. 53 (1900) et Zs. Hymenopt. Dipt., Vol. 2, p. 213 (1902); Wingate, Durham Dipt., p. 302 (1906); Bezzi, Bull. Soc. entom. ital., A, Vol. 39, p. 121 (1908).
Roseri Rondani, Prodr., Vol 7, Scatophag., p. 17 (1866).
ruficauda Zetterstedt, Ins. Lapp., p. 733 (1839) et Dipt. Scand., Vol. 5, p. 2055 (1846) [*Cordylura*].

3. *N. femorale* (Loew), Wien. entom. Monatschr., Vol. 8, p. 18 (1864) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 129, pl. 9 (1894) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 653 (1934); Sack, Cordyl., p. 68 (1937). — Alpes.

4. *N. Lesgiæ* (Becker), Berlin. entom. Zs., vol. 39, p. 129 (1894) et Katal. Pal. Dipt., vol. 4, p. 13 (1905) [*Norellia*]; Wingate, Durham Dipt., p. 302 (1906) [*Norellia*]; Sack, Cordyl., p. 69 (1937). — Caucase.

5. *N. lituratum* (Meigen), System. Beschr., Vol. 5, p. 238 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 387 (1835) [*Cleigaster*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2056 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 7 (1864) [*Norellia*]; Becker, Berlin. entom. Zs., Vol. 39, p. 128 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 53 (1900) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905) [*Norellia*]; Pandellé, Revue Entom., p. 324 (1901); Wingate, Durham Dipt., p. 302 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Milan, Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 654 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 69 (1937). — Europe cent. et sept., Sibérie.
flavicornis Meigen, System. Beschr., Vol. 5, p. 239 (1826) [*Cordylura*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 13 (1905) [*Norellia*].
opaca Loew, Wien. ent. Monatschr., Vol. 8, p. 19 (1864) [*Cordylura*].
spinigera Zetterstedt, Ins. Lapp., p. 733 (1839) et Dipt. Scand., Vol. 5, p. 2054 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 128 (1894) et Zs. Hymenopt. Dipt., Vol. 2, p. 214 (1902) [*Norellia*].

6. *N. nervosum* (Meigen), System. Beschr., Vol. 5, p. 234, pl. 45 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 383 (1835) [*Cordylura*]; Schiner, F. A., Vol. 2, 5 (1864) [*Norellia*]; Becker, Berlin. entom. Zs., Vol. 39, p. 126 (1894) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905) [*Norellia*]; Meade, Entom. mon. Mag., p. 173 (1899); Pandellé, Revue Entom., p. 324 (1901) [*Norellia*]; Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 653 (1934); Sack, Cordyl., p. 69 (1937). — Europe, Sibérie.

7. *N. occidentale* (Malloch), Proc. Calif. Acad. Sc., Vol. 9, p. 311 (1919) [*Norellia*]. — Orégon.

8. *N. septentrionale* Hendel, Ark. Zool., Vol. 21, A, n° 18, p. 2 (1930). — Kamtchatka : Petropavlovsk.

9. *N. spinimanum* (Fallén), Dipt. Suec. Scatom., p. 7 (1819) [*Cordylura*]; Meigen, System. Beschr., Vol. 5, p. 235 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 383 (1835) [*Cordylura*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2007 (1846) — Toute l'Europe, Laponie, Arkhangel.

[*Cordylura*]; Schiner, F. A., Vol. 2, p. 7 (1864) [*Norellia*]; Rondani, Prodr., Vol. 7, Scatophag., p. 17 (1866); Gercke, Verh. Ver. naturw. Unterh. Hamburg, Vol. 6, p. 46, pl. 2 (1880); Brauer, Zweifl. K. Mus. Wien, p. 93 (1883); Becker, Berlin. entom. Zs., Vol. 39, p. 127 (1894) et Katal. Pal. Dipt., Vol. 4, p. 14 (1905) [*Norellia*]; Meade, Entom. mon. Mag., p. 173 (1899); Pandellé, Revue Entom., p. 324 (1901) [*Norellia*]; Wingate, Durham Dipt., p. 302 (1906); Séguy, Faune de France, Vol. 28, p. 654, fig. (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 70, pl. 3 et 4 (1937).

semiflava Panzer, Fauna Germ., Vol. 59, p. 19 (1798) [*Musca*].

Larve dans la tige d'un *Rumex aquaticus* L. (Gercke, 1880). Cette espèce aurait été obtenue d'une larve d' « *Anthomyia versicolor* » (von Oken, Isis, p. 173 (1846) cité par Brauer, 1883).

10. *N. striolatum* (Meigen), System. Beschr., Vol. 5, p. 235 (1826) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 6 (1864) [*Norellia*]; Rondani, Prodr., Vol. 7, Scatophag., p. 16 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 127 (1894) et Katal. Pal. Dipt., Vol. 4, p. 14 (1905) [*Norellia*]; Pandellé, Revue Entom., p. 323 (1901) [*Norellia*]; Wingate, Durham Dipt., p. 302 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Milan, Vol. IX, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 653 (1934); Sack, Cordyl., p. 70 (1937). — Europe cent. et mérid.

striata Macquart, S. à Buff., Vol. 2, p. 383 (1835) [*Cordylura*].

11. *N. Zetterstedti* (Gimmerthal), Corresp. v. Riga, Vol. 1, p. 104 (1846); Becker, Katal. Pal. Dipt., Vol. 4, p. 14 (1905). — Russie.

2. Genus NORELLIA Robineau-Desvoidy

Norellia Robineau-Desvoidy, Myodaires, p. 673 (1830); Becker, Berlin. entom. Zs., Vol. 39, p. 127 (1894) et Katal. Pal. Dipt., Vol. 4, p. 13 (1905) [p. p.]; Pandellé, Revue Entom., p. 322 (1898); Stackelberg, Mouches de l'URSS, p. 493 (1933); Séguy, Faune de France, Vol. 28, p. 656 (1934); Sack, Cordyl., p. 70 (1937).

Acantholena Rondani, Prodr., Vol. 1, p. 101 (1856); Becker, Katal. Pal. Dipt., Vol. 4, p. 14 (1905); Séguy, Enc. Ent., Dipt., II, Vol. 6, p. 151.

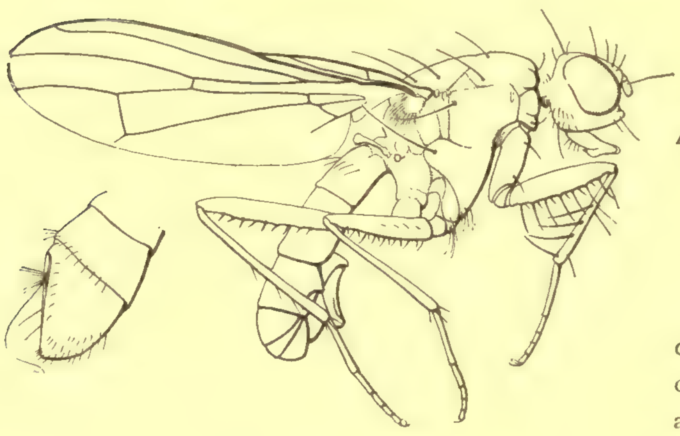


Fig. 5.

Norellia spinipes (Meigen), à droite profil du mâle × 12; — à gauche, oviscapte de la femelle × 20.

Caractères. — Front saillant, trois ou quatre orbitales. Soies occipitales plus fortes que chez les *Norellisoma*. Une vibrisse. Chète antennaire pratiquement nu. Deux soies scapulaires, l'interne plus robuste. — Soies acrosticales nulles; soies dorsocentrales : une ou deux paires distinctes : une antérieure et une postérieure préscutellaire; humérales nulles; une

notopleurale; une supraalaire: une postalaire robuste; présuturales et intraalaires nulles; une propleurale; une petite mésopleurale. Scutellum avec deux soies apicales croisées. Hanches antérieures avec une petite soie antéro-externe et une externe subbasale. Fémurs antérieurs et intermédiaires armés d'une double rangée interne de courtes soies. Tibias antérieurs avec une rangée de quatre longs chètes-épines dressés. Ailes vitreuses, à membrane brillante; sixième nervure courte, tronquée, son extrémité largement séparée du bord de l'aile (**fig. 5**).

Long. 5-9 mm.

Types des genres. — *Norellia* : *Cordylura spinipes* Meigen; *Acantholena* : *A. maculipennis* Rondani.

Répartition géographique. — Europe centrale et méridionale, Afrique septentrionale.

LISTE DES ESPÈCES

1. *N. longipennis* (Séguy), Encycl. ent., Dipt., B II, Vol. 6, p. 152 (1932) et Faune de France, Vol. 28, p. 656 (1934) [*Acantholena*]. — Algérie.

2. *N. melaleuca* (Loew), Europ. Dipt., Vol. 3, p. 248 (1873) [*Cordylura*]; Séguy, Faune de France, Vol. 28, p. 656 (1934). — Europe occid. et mérid., région méditerranéenne, Algérie.
   spinipes auct. (*nec* Meigen), Pandellé, Revue Entom., p. 325 (1901).
   flavicauda Macquart (*nec* Meigen), *ap.* Lucas, Explor. Sc. Algérie, p. 495 (1849).

3. *N. spinipes* (Meigen), Syst. Beschr., Vol. 5, p. 237 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 386 (1835) [*Cleigastra*]; Schiner, F. A., Vol. 2, p. 7 (1864) [*Norellia*]; Becker, Berlin. entom. Zs., Vol. 39, p. 131 (1894) et Katal. Pal. Dipt., Vol. 4, p. 14 (1905); Pandellé, Revue Entom., p. 325 (1901); Wingate, Durham Dipt., p. 293 (1906); Bezzi, Mem. Soc. Ital. Sc. Nat., Milan, Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 657 (1934); Sack, Cordyl., p. 71 (1937). — Europe cent. et mérid.
   maculipennis Rondani, Prodr., Vol. 7, Scatophag., p. 18 (1866) (*Acantholena*).
   pseudonarcissi Robineau-Desvoidy, Myodaires, p. 673 (1830).

SUBFAM. CORDYLURINÆ

Caractères. — Imagos. Espace interoculaire plus ou moins saillant et renflé. Face étroite, plane, ou légèrement déprimée. Trompe épaisse; palpes en baguette fine portant souvent un macrochète apical allongé. Si les palpes sont foliacés, on observe toujours des soies propleurales et stigmatiques bien développées. Antennes prolongées jusqu'à l'épistome ou non, le troisième article peut porter une grande soie sensorielle plantée près de la base du chète antennaire. — Soies propleurales fortes et noires, au moins une soie stigmatique : ces deux groupes de soies rarement piliformes; une, deux ou trois soies sternopleurales; une-cinq dorsocentrales; deux-quatre scutellaires. Pattes longuement ciliées, fémurs armés ou non de spinules courtes, rangées en peigne ou disposées en brosse. Ailes : membrane épaisse : première nervure radiale (*R1*) plus ou moins ciliée ou velue à l'apex. — Abdomen cylindrique ou légèrement aplati à la base, renflé à l'apex chez les mâles, gonflé latéralement chez les femelles, les cerques transformés en lames coupantes.

Diptères zoophages sur de petits insectes à téguments mous, ou Diptères saprophages, occasionnellement coprophages sur des excréments de petits vertébrés (micromammifères ou oiseaux), communs dans les endroits humides ou marécageux des prairies, des bois et des forêts. Les lieux élevés et les hautes montagnes sont habités par des Cordylurines particuliers.

Œufs allongés, à coquille dure et luisante, d'un blanc crayeux, couverte d'une réticulation hexagonale plus ou moins marquée, régulièrement bombés sur la face dorsale, aplatis sur la face ventrale qui est munie de deux bourrelets longitudinaux repliés sur la face interne, ou de deux ailes foliacées, étroites et minces.

Larves. — Corps allongé, pointu à l'apex, tronqué à la partie postérieure. Tête petite, armée (chez les larves du troisième âge) d'un complexe buccal robuste, uni- ou pluridenté; organes sensoriels céphaliques rudimentaires. Stigmates prothoraciques saillants, formés de cinq-treize papilles courtes, étalées en éventail. Segments thoraciques et abdominaux garnis de courtes spinules rangées en plages sternales, pleurales et parfois tergales. Stigmates postérieurs placés dans une caverne peu profonde formée par les protubérances sensorielles de la partie postérieure du corps — où les stigmates sont portés par un renflement plus ou moins épaissi et allongé; chambre feutrée courte (**fig. 44**).

Larves zoophages, coprophages ou saprophages, souvent phytophages et mineuses de feuilles.

Pupe libre dans la terre, parfois retenue par les tissus des végétaux creusés par les larves.

TABLEAU DES GENRES

1 (32). *Une soie sternopleurale.*

2 (31). *Ptéropleure nu.*

3 (6). *Tête en profil nettement plus longue que haute, face très oblique. Chète antennaire plumeux.*

4 (5). *Soie stigmatique forte* . . . . 3. PARATIDIA Malloch.

5 (4). *Soie stigmatique nulle.*

— *Antennes : face externe du troisième article avec une soie plantée près de la base du chète* (**fig. 6**) . . . . . . 2. ACICEPHALA Coq.

— *Antennes : troisième article sans soie supplémentaire* . . 1. PSEUDACICEPHALA Malloch.

6 (3). *Tête plus haute que longue.*

7 (8). *Tête triangulaire, face très oblique. Palpes en massue élargie* . . 4. MIXOCORDYLURA Hendel.

8 (7). *Tête quadrangulaire aussi haute que longue; face médiocrement oblique.*

9 (10). *Fémurs et tibias I avec une rangée de fortes soies ou chètes-épines* . 9. PHROSIA R.-D.

10 (9). *Fémurs et tibias I sans chètes-épines.*

11 (14). *Pas de soie propleurale ni de stigmatique — ou la soie stigmatique seule présente.*

12 (13). *Aile : nervure anale prolongée jusqu'au bord.*

— *Deux soies scutellaires* . . . . 5. LEPTOPA Zett.

— *Quatre soies scutellaires* . . . . 6. ACHÆTELLA Malloch.

13 (12). *Aile : nervure anale courte n'atteignant pas le bord.*

— *Chète antennaire pubescent* . . . . 7. CHYLIZOSOMA Hendel.

— *Chète antennaire plumeux ou cilié* . . . . 8. PARALLELOMMA Becker.

14 (11). *Une soie propleurale et habituellement une soie stigmatique.*

15 (22). *Palpes plus ou moins élargis, sans soie apicale saillante ou dressée.*

16 (19). *Aile : nervure R1 sétuleuse apicalement.*

17 (18). *Scutellum avec six soies* . . . . 11. BUCEPHALINA Malloch.

18 (17). *Scutellum avec deux ou quatre soies.*

— *Palpes étroits* . . . . 10. MEGOPHTHALMA Becker.

— *Palpes élargis et spatulés* . . . . 13. CORDYLURELLA Malloch.

19 (16). *Aile : nervure R1 nue.*
20 (21). *Nervure anale prolongée jusqu'au bord de l'aile* . . . . 12. CORDYLURA Fallén.
21 (20). *Nervure anale courte n'atteignant pas le bord de l'aile.*
— *Antennes : troisième article moins de trois fois aussi long que large.* . . . . 13. CORDYLURELLA Malloch.
— *Troisième article antennaire quatre fois aussi long que large* . . . . 14. MICROPSELAPHA Becker.
22 (15). *Palpes longs et minces, munis d'une longue soie apicale.*
23 (24). *Aile : troisième nervure (M1) sinueuse.* . . . . 15. SCOLIAPHLEPS Becker.
24 (23). *Troisième nervure rectiligne.*
25 (26). *Soie stigmatique forte.* . . . . 12. CORDYLURA Fallén.
26 (25). *Soie stigmatique faible ou piliforme.*
27 (28). *Yeux non émarginés postérieurement* . . . . 16. NEOGYMNOMERA Malloch.
28 (27). *Yeux légèrement émarginés postérieurement.*
29 (30). *Aile : nervure anale prolongée au bord de l'aile.*
— *Scutellum avec deux soies* . . . . 5. LEPTOPA Zett.
— *Scutellum avec quatre soies* . . . . 6. ACHÆTELLA Malloch.
30 (29). *Nervure anale n'atteignant pas le bord de l'aile.*
— *Chète antennaire pubescent.* . . . . 7. CHYLIZOSOMA Hendel.
— *Chète antennaire plumeux ou longuement pubescent* (fig. 10) 8. PARALLELOMMA Becker.
31 (2). *Ptéropleure cilié.*
— *Aile : nervure R1 sétuleuse apicalement; nervure anale courte, non prolongée à la marge* . . . . 17. DASYPLEURON Malloch.
— *Aile : nervure R1 nue, nervure anale prolongée à la marge.* 18. MEGAPHTHALMOIDES Ring.
32 (1). *Deux ou trois soies sternopleurales.*
33 (34). *Deux soies sternopleurales.*
— *Scutellum avec deux soies marginales. Antennes : troisième article arrondi à l'apex* . . . . 19. HEXAMITOCERA Becker.
— *Scutellum avec quatre soies marginales. Antennes : troisième article anguleux à l'apex.*
— *Palpes minces* . . . . 20. GONATHERUS Rondani.
— *Palpes élargis* . . . . 26. PSELAPHEPHILA Becker.
34 (33). *Trois soies sternopleurales.*
35 (36). *Scutellum avec six soies marginales. Palpes avec un macrochète apical* . . . . 21. PLETHOCHÆTA Coq.
36 (35). *Scutellum avec quatre soies marginales. Palpes sans macrochète apical. Chète antennaire non coudé.*
37 (38). *Aile : R1 sétuleuse apicalement.*
— *Scutellum : quatre soies subégales* . . . . 27. ORTHOCHÆTA Becker.
— *Scutellum : deux soies marginales robustes, deux apicales ciliformes* . . . . 28. CNEMOPOGON Rdi.
38 (37). *Aile : R1 nue.*
39 (40). *Fémurs I avec de fortes soies antérieures. Propleure cilié* . . . 22. AMAUROSOMA Becker.
40 (39). *Fémurs I sans fortes soies antérieures.*

41 (42). *Palpes courts, normaux.*

— *Antennes : troisième article anguleux à l'apex antérieur; chète coudé* . . . . 23. GONARCTICUS Rondani.

— *Antennes : troisième article arrondi à l'apex; chète non coudé* . . . . 24. MESAMYIA Malloch.

42 (41). *Palpes longs ou très longs. Chète antennaire non coudé.*

— *Yeux à peine plus longs que larges. Antennes prolongées jusqu'à l'épistome* . . . . 25. SPATHEPHILUS Becker.

— *Yeux ovalaires, plus longs que larges. Antennes n'atteignant pas l'épistome*. . . . . 26. PSELAPHEPHILA Becker.

1. Genus PSEUDACICEPHALA Malloch

Pseudacicephala Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 432 (1931); Curran, North Amer. Dipt., p. 387 (1934).

Acicephala Curran (*nec* Coquillett), Canad. Entom., Vol. 59, p. 259 (1927).

Caractères. — Très voisin du genre *Acicephala*, en diffère par l'absence de la fine soie sur la face externe du troisième article antennaire. Deux profondes dépressions antennaires sur la moitié supérieure de la hauteur de la face. Tête allongée, triangulaire, occiput gonflé postérieurement et en bas. Trompe épaisse; palpes spatulés, armés d'une longue soie apicale. Chète antennaire plumeux. Soies verticales postérieures réduites ou nulles. — Soie stigmatique nulle.

Long. 5-7 mm.

Type du genre. — *Acicephala pilosella* Coquillett.

Répartition géographique. — Amérique septentrionale.

LISTE DES ESPÈCES

1. *P. alberta* (Curran), Canad. Entom., Vol. 59, p. 259 (1927) [*Acicephala*]. — Alberta.
2. *P. marginata* Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 432 (1931). — Nevada.
3. *P. pilosella* (Coquillett), Journ. N. Y. Ent. Soc., Vol. 6, p. 163 (1898) [*Acicephala*]; Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Colorado, Nevada.

2. Genus ACICEPHALA Coquillett

Acicephala Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 163 (1898); Aldrich, Cat. N. Amer. Dipt., p. 566 (1905); Malloch, Rep. Canad. Arct. Exp., p. 76 C (1919) et Ann. Mag. Nat. Hist., (10), vol. 8, p. 431 (1931); Curran, Canad. Entom. Vol. 59, p. 259 (1927) et North Amer. Dipt., p. 387 (1934).

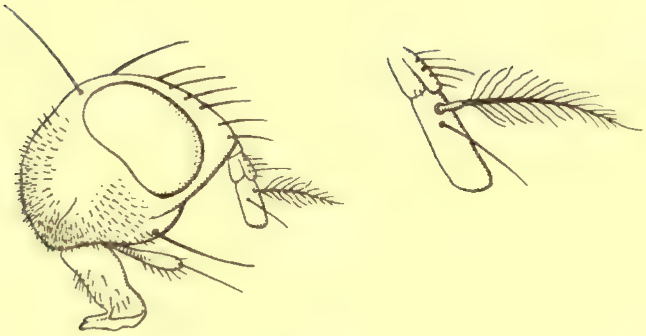


Fig. 6.

Acicephala polita Coquillett, profil de la tête et antenne du mâle (selon J. R. Malloch).

Caractères. — Tête allongée, subtriangulaire, face oblique, entièrement couverte d'une pruinosité grise; occiput gonflé à la partie inférieure, très élargi en arrière des yeux. Antennes : troisième article avec un long cil planté près de la base du chète antennaire, ce dernier plumeux (**fig. 6**). Soies verticales postérieures microscopiques ou nulles. — Soie stigmatique nulle.

Long. 5 mm.

Type du genre. — *Acicephala polita* Coquillett.

Répartition géographique :

1. *A. polita* Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 163 (1898); Aldrich, Catal. N. Amer. Dipt. p. 566 (1905). Amérique sept. et boréale.

3. Genus PARATIDIA Malloch

Paratidia Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 432 (1931); Curran, North Amer. Dipt., p. 387 (1934).

Caractères. — Tête allongée, subtriangulaire. Face très oblique, entièrement couverte d'une pruinosité épaisse, fossettes antennaires réduites ou nulles; soies verticales postérieures médiocres; occiput gonflé à la partie inférieure. Antennes normales, chète plumeux. — Soie stigmatique bien developpée. Ptéropleure nu (Malloch).

Type du genre. — *Acicephala intermedia* Curran.

Répartition géographique :

1. *P. intermedia* (Curran), Canad. Entom., Vol. 59, p. 259 (1927) [*Acicephala*]. Manitoba.

4. Genus MIXOCORDYLURA Hendel

Mixocordylura Hendel, Deutsch. Entom. Zs., p. 777 (1909).

Caractères. — Femelle. Tête triangulaire en profil; yeux ronds, joues et péristome larges, face étroite; espace interoculaire légèrement bombé; soies orbitales inférieures internes proclinées; deux orbitales externes également proclinées; une orbitale supérieure ciliforme réclinée; ocellaires longues et fortes; occipitales fortes, les internes croisées, les externes divergentes; verticales postérieures longues, rapprochées à la base, très divergentes à l'apex; péristomales faibles, en rangées régulières. Trompe médiocre, très fortement chitinisée, labelles petites. Palpes en massue élargie, couverts d'une ciliation serrée. Antennes grêles, plantées au niveau du milieu de la hauteur des yeux. Chète nu, épaissi à la base. — Cinq ou six soies dorsocentrales (2-3+3), acrosticales ciliformes, disposées en deux rangées,

une paire préscutellaire, deux humérales, une posthumérale, une présuturale, une soie plantée sur le calus postalaire, quatre soies supraalaires en deux rangées; quatre scutellaires, les apicales croisées. Une propleurale et une stigmatique; trois mésopleurales, une sternopleurale. Mésopleure et sternopleure ciliés, ptéropleure nu. Pattes robustes, fémurs épaissis; tibias antérieurs avec deux soies postéro-externes, face postéro-interne avec une rangée longitudinale de longues soies sur l'arête externe et une villosité épaisse et longue sur l'arête interne. Aile: costale armée d'épines courtes, troisième et quatrième longitudinales légèrement divergentes, transverse postérieure rectiligne, un peu plus courte que le segment de la quatrième nervure compris entre les deux transverses. — Abdomen légèrement plus long que le thorax, en ovale allongé, six segments visibles, extrémité triangulaire, un peu renflé en dessous. Cerques ovalaires, plaque génitale épineuse (fig. 7).

Long. 7-9 mm.

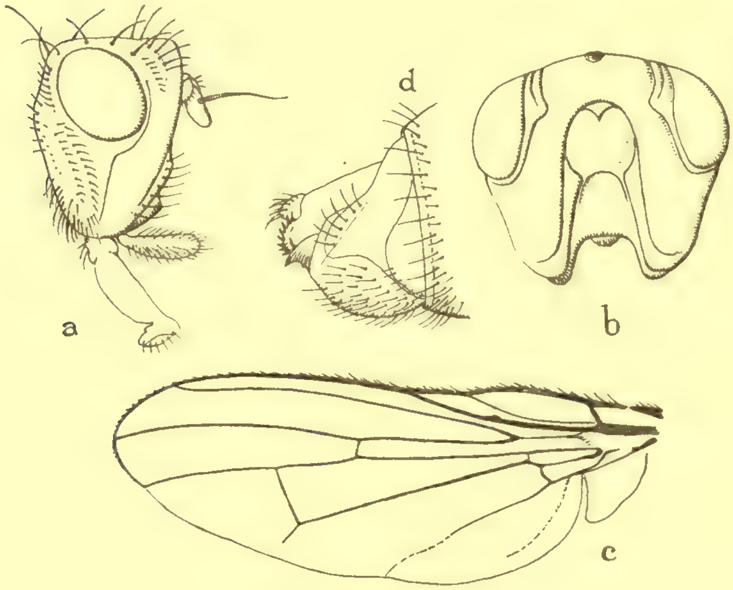


Fig. 7.

Mixocordylura longifacies Hendel femelle.

a. profil de la tête; — *b.* tête vue de face; — *c.* aile; — *d.* extrémité de l'abdomen × 20.

Type du genre. — *Mixocordylura longifacies* Hendel.

Répartition géographique :

1. *M. longifacies* Hendel, Deutsche Entom. Zs., p. 782 (1909). Mongolie sept.

5. Genus LEPTOPA Zetterstedt

Leptopa Zetterstedt, Ins. Lappon., p. 698 (1839); Pandellé, Revue Entom., p. 308 (1898); Becker, Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 292 (1906); Stackelberg, Mouches de l'URSS, p. 490 (1933); Séguy, Faune de France, Vol. 28, p. 668 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 33 (1937).

Caractères. — Yeux allongés. Joues et péristome étroits; front saillant, occiput gonflé en arrière et en bas. Angle postérieur du péristome avec une série de fortes soies noires; vibrisse forte. Palpes filiformes, terminés par une soie apicale de couleur pâle. Antennes courtes; troisième article arrondi à l'apex; chète couvert d'une pubescence microscopique. — Corps grêle, soies scapulaires robustes; soies acrosticales piliformes, disposées en deux ou trois rangées irrégulières; trois ou quatre

paires de soies dorsocentrales; scutellum : soies intermédiaires très fortes; deux cils apicaux; ptéropleure nu, une mésopleurale, propleurales irrégulières, une sternopleurale. Tibias postérieurs avec deux macrochètes à l'union du tiers moyen et du tiers basal et deux autres à l'union du tiers moyen et du tiers apical, et sur les faces antéro-externe et postéro-externe. Ailes : première nervure longitudinale nue, nervure anale prolongée au bord de l'aile (**fig. 8**).

Long. 4-5 mm.

Type du genre. — *L. filiformis* Zetterstedt.



Fig. 8.

Leptopa filiformis Zetterstedt femelle.
à gauche, profil × 12; — à droite, tête vue de face × 40.

Répartition géographique :

1. *L. filiformis* Zetterstedt, Ins. Lappon., p. 698 (1839) et Dipt. Scand. Vol. 5, p. 1794 (1846); Schiner, F. A., Vol. 2, p. 1 (1864); von Röder, Wien. entom. Zs., Vol. 12, p. 81 (1893); Becker, Berlin. entom. Zs., Vol. 39, p. 105, pl. 6 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Meade, Entom. mon. Mag., p. 170 (1899); Pandellé, Revue Entom., Vol. 20, p. 309 (1901); Wingate, Durham Dipt., p. 292 (1906); Séguy, Faune de France, Vol. 28, p. 669 (1934); Sack, Cordyl., p. 34 (1937). — Europe cent. et sept., Laponie, Arkhangel.
   flava Haliday, Entom. Mag., Vol. 4, p. 150 (1837) [*Cordylura*].
   flaveola Zetterstedt, Ins. Lappon., p. 735 (1838) [*Cordylura*].
   pallida var. *b minor* Fallén, Dipt. Suec., Scatomyz., p. 8, 4 (1819) [*Cordylura*].

6. Genus ACHÆTELLA Malloch

Achætella Malloch, Ent. News, Vol. 34, p. 140 (1923); Curran, North Amer. Dipt., p. 389 (1934).

Caractères. — Diffère des genres *Parallelomma* et *Americina* par l'absence des soies verticales postérieures. La soie préalaire est bien développée et généralement aussi la notopleurale postérieure. Soies propleurale et stigmatique nulles. Ptéropleure nu. Quatre soies scutellaires. Aile : sixième nervure longitudinale prolongée à la marge.

Long. 7-8 mm.

Type du genre. — *Lissa varipes* Walker.

Répartition géographique. — Le type provient de l'Ohio. *L'Achætella varipes* a été signalé depuis dans le New-Jersey, le Wisconsin, l'Illinois et à Montréal (Canada). Cette espèce paraît commune et répartie dans l'Illinois, et dans les Etats atlantiques des U. S., au sud du district de Columbia (Malloch).

1. *A. varipes* (Walker), List Dipt. Ins. Brit. Mus., Vol. 4, p. 1046 (1872) [*Lissa*]; Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Amérique sept.

bimaculata (Loew), Wien. entom. Monatschr., Vol. 4, p. 81 (1860) et Dipt. Amer. sept. ind., Cent. III, p. 40 (1863) [*Cordylura*].

maculipennis (van der Wulp), Tijdschr. v. Ent., Vol. 10, 152 (1867) [*Cordylura*]; Loew, Zs. Ges. Naturwiss., Vol. 36, p. 116 (*teste* Aldrich, l. c.).

7. Genus CHYLIZOSOMA Hendel

Chylizosoma Hendel, Ent. Mitt., Vol. 13, p. 83 (1924); Vimmer, Sbornik ent. Odd. narod. Mus. Praze, Vol. 4 (35), p. 119 (1926); Séguy, Faune de France, Vol. 28, p. 665 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 25 (1937).

Americina Malloch, Ent. News, Vol. 34, p. 139 (1923); Curran, North Amer. Dipt., p. 389 (1934).



Fig. 9.

Chylizosoma Paucheti Séguy, profil de la femelle × 12

Caractères. — Chète antennaire pubescent. — Mésonotum couvert d'une fine pilosité dressée; quatre ou cinq soies dorsocentrales (1-2+3). Ptéropleure nu; une soie mésopleurale; une soie sternopleurale très longue. Pattes allongées, à soies faibles et villosité éparse; griffes et pelotes réduites. Ailes amples à membrane fortement irisée; première nervure longitudinale (*R1*) à pilosité fine dans la moitié apicale; région distale de la quatrième nervure (*M2a+b*) courte et rectiligne; nervure anale courte. — Abdomen aplati, renflé à l'apex; tergite I avec des macrochètes discaux latéraux; sternite prégénital profondément fendu, lobes élargis non saillants (**fig. 9**).

Long. 4,5-6 mm.

Types des genres. — *Chylizosoma*, type : *Parallelomma medium* Becker. — *Americina*, type : *Cordylura adusta* Loew.

Biologie. — Les larves de plusieurs espèces de *Chylizosoma* creusent des mines dans l'épaisseur des feuilles de certaines Liliacées et Orchidées. Aux plantes citées plus loin il faut ajouter le *Convallaria majalis* L., les *Veratrum album* L., *lobelianum* Bern. et l'*Orchis fusca* Jacq., sur les feuilles desquels on a observé des larves de *Chylizosoma* dont l'espèce n'a pas été déterminée. C'est probablement à une espèce de ce genre qu'il faut rapporter l'observation de Kaltenbach relative à un « *Cordylura albipes* » obtenu des feuilles du *Convallaria majalis* L. et du *Polygonatum multiflorum* L. (Pflanzenf., p. 714, 1 et 724,5).

Répartition géographique. — Régions tempérées de la zone holarctique.

Classification. — F. Hendel divise le genre *Chylizosoma* en deux sous-genres en utilisant les caractères suivants :

— *Antennes : troisième article à peu près deux fois aussi long que large. Chète antennaire à pubescence longue, plus de la moitié de la largeur du troisième article antennaire.* —

Deux soies supraalaires, la première (préalaire) courte. Thorax : pleures uniformément jaunâtres. Fémurs sans tache préapicale sombre. Nervure anale n'atteignant pas le bord de l'aile . . . . s. g. CHYLIZOSOMA s. s

— *Antennes : troisième article très peu plus long que large. Chète antennaire à pubescence courte, égalant à peu près la moitié de la largeur du troisième article antennaire. — Une seule soie supraalaire, la deuxième (la préalaire manque). Pleures avec une bande transversale noire. Fémurs intermédiaires et postérieurs avec une tache préapicale sombre. Nervure anale prolongée à la marge de l'aile, au moins sous forme de pli* . . . . s. g. AMERICINA Malloch

En plus des formes américaines le sous-genre *Americina* comprend les espèces des groupes *vitattum* et *paridis*.

LISTE DES ESPÈCES

1. *C. adustum* (Loew), Dipt. Amer. sept. ind., Cent. III, p. 41 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905); Malloch, Ent. News, Vol. 34, p. 139 (1923) [*Americina*]. — Amérique sept.

2. *C. Beckeri* Séguy, Enc. ent., B. II, Diptera, Vol. 6, p. 153 (1932) et Faune de France, Vol. 28, p. 665 (1934). — Dorpat.

3. *C. flava* Szilady, Ann. Hist. nat. Mus. hung., Vol. 36, p. 180 (1943). — Carpathes sept.

4. *C. inermis* (Loew), Dipt. Amer. sept. ind., Cent. IX, p. 88 (1869) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905) [*Cordylura*]; Malloch, Ent. News, Vol. 34, p. 140 (1923). — New Hampshire, Idaho.

   nudicornis Cresson, Ent. News, Vol. 29, p. 135 (1918) [*Paralleloma*], *teste* Malloch, l. c. p. 140. — Etats-Unis d'Amérique.

5. *C. medium* (Becker), Berlin. entom. Zs., Vol. 39, p. 96 (1894) et Kat. Pal. Dipt., Vol. 4, p. 4 (1905) [*Parallelomma*]; Wingate, Durham Dipt., p. 299 (1906); Hendel, Entom. Mitt., Vol. 13, p. 83 (1924); Séguy, Faune de France, Vol. 28, p. 666 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 26 (1937). — Europe cent. et sept.

   La larve mine les feuilles du *Maianthemum bifolium* L. et des *Polygonatum multiflorum* All., *officinale* L. et *verticillatum* L. (Hendel, Hering).

6. *C. paridis* Hering, Deutsche ent. Zs., p. 200 (1923); Hendel, Entom. Mitteil., Vol. 13, p. 84 (1924); Séguy et Pauchet, Bull. Soc. linn. Nord de la France, Vol. 24, n° 418, p. 47 (1929); Séguy, Faune de France, Vol. 28, p. 666 (1934); Sack, Cordyl., p. 25 et 26 (1937); Hering, Blattminen, p. 350 (1936). — Europe cent. et boréale.

   La larve mine les feuilles du *Paris quadrifolia* L.

7. *C. Paucheti* Séguy, Enc. ent., Série B. II, Diptera, Vol. 6, p. 153 (1932); Séguy, Faune de France, Vol. 28, p. 666, fig. 864 (1934). — Europe occid.

   paridis Séguy et Pauchet (*nec* Hering) Bull. Soc. linn. Nord de la France, Vol. 24, n° 418, p. 47 (1929), *teste* Séguy.

   La larve mine les feuilles du *Paris quadrifolia* L. et du *Polygonatum multiflorum* All.

8. *C. vittatum* (Meigen), Syst. Beschr., Vol. 5, p. 236 (1826) [*Cordylura*]; Zetterstedt, Ins. Lappon., p. 729 (1839) et Dipt. Scand., Vol. 5, p. 2019 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 96 (1894) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905) [*Parallelomma*]; Meade, Ent. mon. Mag., p. 5 (1899) [*Cleigastra*]; Pandellé, Rev. Entom. p. 318 (1901) [*Mosina*]; Hering, Deutsch. ent. Zs., p. 136 (1920); Hendel, Ent. Mitteil., Vol. 23, p. 84 (1924) [*Americina*] et Blattminenkunde Europas, p. 51 (1926); Robbins, London Natur., p. 77 (1929); Séguy, Faune de France, Vol. 28, p. 665, fig. 846 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Hering, Blattmin., p. 141, 165, 190, 210, 258, 308, 320, 346, 350 (1836); Sack, Cordyl., p. 26 (1937). — Europe cent. et sept.

? *albipes* Kaltenbach, Pflanzenfeinde, p. 714 et 724 (1874) [*Cordylura*].
albipes var. *bilineata* Brischke, Blattminierer in Danzigs Umgebung, p. 52 (1880).

La larve mine des feuilles des *Polygonatum officinale* All. et *multiflorum* All., du *Paris quadrifolia* L., ou de certaines orchidées : *Listera ovata* R. Br., *Epipactis latifolia* All., *E. palustris* Krantz, *Cephalanthera rubra* Rich., *Gymnadenia conopsea* L., *Platanthera bifolia* L., *Ophrys arachnites* Murr., *Orchis mascula* L., *Cypripedium calceolus* L.

8. Genus PARALLELOMMA Becker

Parallelomma Becker, Berlin. entom. Zs., Vol. 39, p. 94 (1894) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905); Wingate, Durham Dipt., p. 290, 298, 486 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919) et Ent. News, Vol. 34, p. 139 et 175 (1923); Hendel, Ent. Mitt., Vol. 13, p. 83 (1924) et Arkiv Zoologi, Vol. 21 A, nº 18, p. 5 (1930); Curran, North Amer. Dipt., p. 389 (1934); Stackelberg, Mouches de l'URSS, p. 489 (1933); Séguy, Faune de France, p. 664 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 23 (1937).

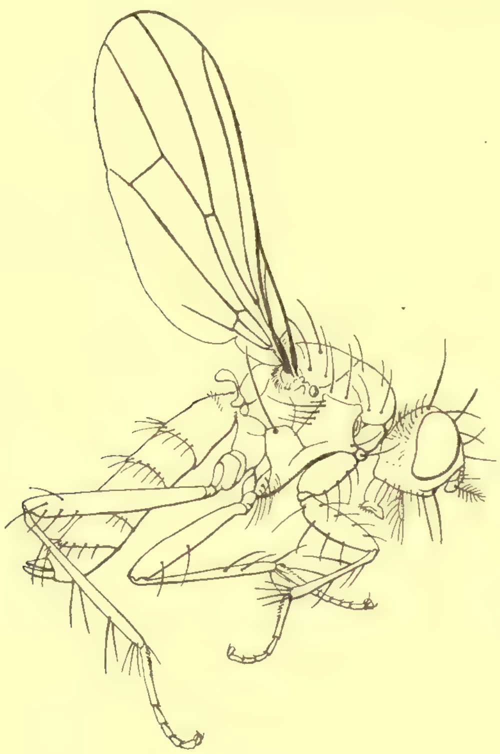


Fig. 10.

Parallelomma albipes (Fallén), profil de la femelle × 12.

Mosina Robineau-Desvoidy, Myodaires, p. 670 (*pars*) [1830]; Pandellé, Revue Entom., p. 318 (1901).

Caractères. — Tête arrondie, occiput gonflé. Trompe épaisse, palpes légèrement plus courts que la trompe, renflés à l'apex, à soies longues. Antennes courtes, chète longuement cilié. — Mésonotum avec des chétules dispersés sur le fond en dehors des grandes soies sensorielles; deux soies humérales, deux intraalaires, deux postalaires; deux scutellaires marginales fortes et deux chétules apicaux; une ou deux mésopleurales, une sternopleurale, soie propleurale irrégulière. Ptéropleure nu. Pattes longues et grêles. Ailes : nervure anale courte. — Femelle : cerques chitinisés, dernier sternite abdominal corné, robuste, aplati en soc de charrue ou en bec coupant (**fig. 10**).

Long. 5-7 mm.

Types des genres. — *Parallelomma*, type : *Cordylura albipes* Fall. — *Mosina*, type : *M. fulva* R.-D.

Répartition géographique. — La majorité des espèces connues habitent l'Amérique septentrionale ou boréale, trois espèces se trouvent en Europe centrale, septentrionale et boréale, quatre vivent en Europe occidentale ou méridionale, et une à Formose.

LISTE DES ESPÈCES

1. *P. albipes* (Fallén), Dipt. Suec. Scatomyz., p. 9 (1819) [*Cordylura*]; Meigen, System. Beschr., Vol. 5, p. 233 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 383 (1835) [*Cordylura*]; Zetterstedt, Ins. Lapp., p. 726 (1839) et Dipt. Scand., Vol. 5. p. 2004 (1846) [*Cordylura*]; Walker, Ins. Brit., Vol. 2. p. 150 (1850) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 4 (1864) [*Cordylura*]; Rondani, Prodr., Vol. 7, Scatophag., p. 4 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 95 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905); Pandellé, Revue Entom., p. 320 (1901); Wingate, Durham Dipt., p. 299 (1906); Séguy, Faune de France, Vol. 28, p. 664, figs. (1934); Ringdahl, Entom. Tidskr., Vol. 59, p. 162 (1936); Sack, Cordyl., p. 24 (1937). — Europe, Laponie, Sibérie.
   bilineata Meigen, Syst. Beschr., Vol. 7, p. 340 (1838) [*Cordylura*]; *teste* Becker, Zs. Hymenopt. Dipt., Vol. 2, p. 216 (1902).
   filipes Robineau-Desvoidy, Myodaires, p. 673 (1830) [*Mosina*].
2. *P. Banksi* Malloch, Entom. News, Vol. 34, p. 180 (1923). — New-York.
3. *P. deceptivum* (Malloch), Entom. News, Vol. 34, p. 180 (1923) [*Cordylura*]. — Michigan.
4. *P. dimidiatum* Cresson, Entom. News, Vol. 29, p. 135 (1918); Malloch, Ent. News, Vol. 34, p. 178 (1923). — Pensylvanie, Maryland.
5. *P. emarginatum* Malloch, Ent. News, Vol. 34, p. 179 (1923). — Amérique sept., Etats-Unis, Virginie.
   var. *dorsalis* Malloch, l. c., p. 180 (1923).
6. *P. flavovarium* Coquillett, Canad. Entom., Vol. 42, p. 44 (1910). — Pensylvanie.
7. *P. fulvum* (Robineau-Desvoidy), Myodaires, p. 672 (1830) [*Mosina*]. — France.
8. *P fuscipes* (Zetterstedt), Ins. Lapp., p. 726 (1839) et Dipt. Scand., Vol. 5, p. 2006 (1846) [*Cordylura*]; Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936). — Europe sept., Suède, Laponie.
   dispar Zetterstedt, Dipt. Scand. Vol. 5, p. 2012 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 95 (1894) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905); Wingate, Durham Dipt., p. 298 (1906); Séguy, Faune de France, Vol. 28. p. 664 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 24 (1937).
9. *P. fuscitibia* (Rondani), Prodr., Vol. 7, Scatophag., p. 14, 7 (1866) et Atti Soc. ital. Sc. nat., Vol. 10, p. 99 (1867) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 95 (1894) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Wingate, Durham Dipt., p. 299 (1906); Séguy, Faune de France, Vol. 28, p.665 (1934); Sack, Cordyl., p. 25 (1937). — Alpes, Italie, Corse.
10. *P. hispanicus* Czerny *ap.* Czerny et Strobl, Verh. z.-b. Ges. Wien, Vol. 59, p. 247 (1909). — Algésiras.
11. *P. longicornis* Hendel, Suppl. entom., Berlin, Vol. 2, p. 77 (1913). — Formose.

12. *P. mundum* (Loew), Dipt. Amer. sept. ind., Cent. IX, p. 91 (1869) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt. p. 565 (1905); Malloch, Entom. News, Vol. 34, p. 179 (1923). — Canada, New Hampshire, Washington.

13. *P. nigriseta* (Rondani), Prodr., Vol, 7, Scatophag., p. 14 (1866) [*Cordylura*]. — Italie.

14. *P. ochraceum* Hendel, Arkiv. Zoologi, Vol. 21 A, n° 18, p. 6 (1930). — Kamtchatka : Petropavlovsk.

15. *P. pleuriticum* (Loew), Dipt. Amer. sept. ind., Cent. III, p. 42 (1863) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905); Malloch, Ent. News, Vol. 34, p. 178 (1923). — Amérique sept., Canada.
   Slossonæ Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 164 (1898) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt., p. 566 (1905); *teste* Malloch, l. c., p. 178.
   vicina Cresson (*non* van der Wulp), Ent. News, Vol. 29, p. 136 (1918); *teste* Malloch, l. c., p. 178.

16. *P. setipes* Coquillett, Canad. Entom., Vol. 42, p. 43 (1910). — Pensylvanie.

17. *P. similata* Malloch, Entom. News, Vol. 34, p. 178 (1923). — Canada, New Hampshire.

18. *P. tarsalis* Malloch, Entom. News, Vol. 34, p. 177 (1923). — Canada, Virginie.

19. *P. unicolor* (Loew), Wien. entom. Monatschr., Vol. 8, p. 17 (1864) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 93 (1894) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905) [*Cordylura*]; Wingate, Durham Dipt., p. 298 (1906); Séguy, Faune de France, Vol. 28, p. 659 (1934) [*Cordylura*]; Sack, Cordyl., p. 25 (1937). — Espagne.

9. GENUS PHROSIA ROBINEAU-DESVOIDY

Phrosia Robineau-Desvoidy, Myodaires, p. 669 (1830); Becker, Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Wingate, Durham Dipt., p. 291 (1906); Stackelberg, Mouches de l'URSS, p. 489 (1933); Séguy, Faune de France, Vol. 28, p. 667 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 27 (1937).

Ocyptera Fabricius (*p.p.*), System. Antl., p. 315 (1805).



Fig. 11.

Phrosia albilabris (Fabricius), profil de la femelle × 12 ; — à gauche œuf.

Caractères. — Tête subquadrangulaire. Yeux très grands, leur bord inférieur séparé de la marge du péristome par un espace subégal à la largeur du troisième article antennaire. Front avec six paires de soies orbitales. Une vibrisse faible, mais différenciée. Trompe courte, épaisse; palpes grêles, en massue étroite, ciliés sur le bord inférieur, une longue soie apicale. Antennes à peu près aussi longues que la face, troisième article près de deux fois et demie plus long que le deuxième : chète antennaire plutôt épais, velu jusqu'à l'apex. — Thorax : cinq paires de soies dorsocentrales fines ou piliformes, sauf les paires présuturale et préscutellaire plus robustes; une soie humérale,

deux posthumérales; deux scutellaires latérales fortes et deux apicales ciliformes; soies propleurales et stigmatiques réduites à des chètules : une mésopleurale plantée sur la suture, ptéropleure nu, une sternopleurale. Pattes longues, griffes et pelotes courtes. Fémurs antérieurs avec cinq-sept macrochètes en rangée régulière, dressée sur la face interne; fémurs intermédiaires et postérieurs avec une soie caractéristique plantée sur la face interne, à la base; fémurs postérieurs avec une soie préapicale; tibias postérieurs avec trois paires de soies externes; tibias antérieurs et intermédiaires avec deux soies internes. Ailes aussi longues que l'abdomen, arrondies à l'apex. — Abdomen aplati à la base. Oviscapte conformé comme celui des *Cordylura* (**fig. 11**).

Long. 6-8 mm.

Type du genre. — *Phrosia scirpi* Robineau-Desvoidy (= *albilabris* Fabricius).

Biologie. — Les larves sont peut-être phytophages et mineuses de végétaux. L'espèce *Phrosia convallariæ* K., rétablie par M. Sack, citée ici pour mémoire, représente peut-être un *Chylizosoma*.

Répartition géographique. — Europe.

LISTE DES ESPÈCES

1. *P. albilabris* (Fabricius), Syst. Antl., p. 315 (1805) [*Ocyptera*]; Meigen, System. Beschr., Vol. 5, p. 233 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 282 (1835) [*Cordylura*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2003 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 4 (1864); Rondani, Prodr., Vol. 7, Scatophag., p. 14 (1866) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 97 (1894) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Pandellé, Revue Entom., p. 319 (1901); Wingate, Durham Dipt., p. 291 (1906); Séguy, Faune de France, Vol. 28, p. 668 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 27 (1937). — Europe.
   scirpi Robineau-Desvoidy, Myodaires, p. 669 (1830).
2. *P. convallariæ* (Kaltenbach), Pflanzenf., p. 724 (1874) et Verh. naturf. Ver. d. Preuss. Rheinl., Vol. 16, p. 273 [*Cordylura*]; Becker, Katal. Pal., Dipt., Vol. 4, p. 2 (1905); Sack, Cordyl., p. 28 (1937). — Allemagne.
   La larve mine les tiges du *Polygonatum multiflorum* All.
3. *P. incisa* (Meigen), System. Beschr., Vol. 7, p. 340 (1838) [*Cordylura*]; Becker, Katal. Pal. Dipt,, Vol. 4, p. 2 (1905) [*Cordylura*]; Sack, Cordyl., p. 28 (1937). — Allemagne.

10. Genus MEGOPHTHALMA Becker

Megophthalmum (Becker), Hendel, Wien. ent. Ztg., 29, p. 307 (1910) non *Megophthalmus* Curtis, Guide British Ins. (7), p. 193 (1831) et Entom. Mag., Vol. 1, p. 193 (1833); Séguy, Faune de France, Vol. 28, p. 669 (1934).

Megaphthalma Becker, Berlin. entom. Zs., Vol. 39, p. 105 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905) et Smithson. Miscell. Coll., Vol. 46, p. 567 (1905); Wingate, Durham Dipt., p. 292 (1906); Malloch, Rep. Canad. Arct. Exp., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 490 (1933); Curran, North Amer. Dipt., p. 387, 389 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 34 (1937).

Caractères. — Yeux très grands, allongés, séparés des bords du péristome par un espace égal à la moitié de la largeur du troisième article antennaire. Joues étroites. Occiput gonflé en arrière et en bas. Angle postérieur du péristome avec une grande soie noire; angle vibrissal saillant, soies médiocres ou nulles ou deux soies : la vibrisse et une soie accessoire. Trompe mince; palpes épais, étroits. Chète antennaire très long, régulièrement épaissi en fuseau à la base, pratiquement nu (**fig. 12**). — Thorax couvert d'une fine pilosité noire, plus visible sur le mésonotum. Cinq paires de soies dorsocentrales, une humérale, deux posthumérales, une présuturale. Deux scutellaires. Trois ou quatre mésopleurales, deux ou trois propleurales, une stigmatique, une forte sternopleurale, ptéropleure dénudé. Fémurs postérieurs avec une rangée interne de cils régulièrement disposés en ligne, tibias sans soies. Aile : première nervure (*R1*) ciliée, épine costale nulle. — Abdomen légèrement aplati à la base, bord postérieur des tergites avec des soies médiocres.

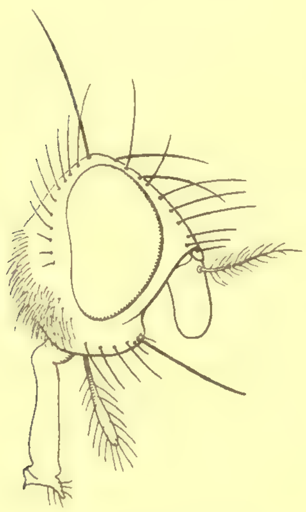


Fig. 12.
Megophthalma pallidum (Fallén), profil de la tête du mâle x 15.

Long. 4-6 mm.

Type du genre. — *Cordylura pallida* Fallén.

Répartition géographique. — Région holarctique.

Classification. — Le *Megophthalma americanum* Malloch qui est inclus dans ce genre est remarquable par le chète antennaire muni de longs cils, par la chétotaxie de l'appareil ambulatoire, par la première nervure longitudinale ciliée dans sa moitié apicale, par le scutellum muni de deux soies seulement. Nous n'avons pas de données sur la répartition des soies céphaliques et thoraciques chez cette espèce : si cette chétotaxie est différente de celle qui est donnée ici, le *M. americanum* doit former un autre genre.

1. *M. americanum* Malloch, Pan-Pacific Ent., Vol. 1, p. 14 (1924). — Oregon.
2. *M. pallidum* (Fallén), Dipt. Suec., Scatomyz, p. 8,4 (1819) [*Cordylura*]; Meigen, Syst. Beschr., Vol. 5, p. 242 (1826) [*Cordylura*]; Zetterstedt, Ins. Lappon., p. 720 (1839) et Dipt. Scand., Vol. 5, p. 2008 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 106, pl. 6 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905) [*Cordylura*]; Wingate, Durham Dipt., p. 292 (1906); Séguy, Faune de France, Vol. 28, p. 669 (1934); Ringdahl, Entom. Tidskr; Vol. 57, p. 164 (1936); Sack, Cordyl., p. 34 (1937). — Europe cent. et sept., Laponie, Amérique sept.

11. Genus BUCEPHALINA Malloch

Bucephalina Malloch, Rep. Canad. Arct. Exp., p. 76 c et 77 c (1919) (non **Bucephalinus** Koch, 1934, Coleopt.); Curran, North Amer. Dipt., 389 (1934).

Caractères. — Tête grande, face courte, péristome à bords obliques; joues étroites munies de nombreuses et longues soies plantées à la partie inférieure. Orbitales longues. Palpes couverts de cils noirs mais sans longue soie apicale. Antennes : troisième article oblong, arrondi à l'apex; chète nu. — Ptéropleure nu. Scutellum avec six soies. Soies propleurale et stigmatique bien développées. Fémurs antérieurs épaissis. Aile : première nervure longitudinale ciliée dans sa moitié apicale. — Abdomen court.

Long. 5 mm.

Type du genre. — *Cordylura megacephala* Loew.

Répartition géographique :

1. *B. megacephala* (Loew), Dipt. Amer. sept. ind., Cent., Vol. 9, p. 183 (1869) [*Cordylura*]; Aldrich, Catal., p. 565 (1905); Malloch, Rep. Canad. Arct. Exped., p. 77 c (1919). — Amérique sept., Colombie, Illinois, Maryland.

12. Genus CORDYLURA Fallén

Cordylura Fallén, Spec. ent. nov. Dipt., p. 15 (1810); Meigen, System. Beschr., Vol. 5, p. 229 (1826); Schiner, F. A., Vol. 2, p. 1 (1864); Rondani, Dipt. Ital. Prodr., Vol. 7, p. 11 (1866); Townsend, Canad. Entom., Vol. 23, p. 155 (1891); Becker, Berlin. entom. Zs., Vol. 39, p. 88 (1894) et Katal. Pal. Dipt., Vol. 4, p. 1 (1905); van der Wulp, Biol. Centr. Amer., Vol. 2, p. 348 (1898); Pandellé, Rev. Entom., p. 318 (1901); Aldrich, Cat. N. Amer., Dipt. p. 565 (1905); Wingate, Durham Dipt., p. 290 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919), N. Amer. Fauna, Vol. 46, p. 198 (1923), Ent. News, XXXIV, p. 175 (1923) et Pan-Pacific Ent., Vol. 1, p. 14 (1924); Curran, Canad. Ent., Vol. 59, p. 258 (1927) et North Amer. Dipt., p. 389 (1934); Stackelberg, Mouches de l'URSS, p. 488 (1933); Séguy, Faune de France, Vol. 28, p. 659 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 16 (1937).

Lissa Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 1047 (1849).

Mosina Robineau-Desvoidy, Myodaires, p. 670 (1830) [p.p.]



Fig. 13.

Cordylura pubera (Linné), profil du mâle × 15; — à gauche, œuf du *Cordylura picipes* Meigen; — à droite, oviscapte du *Cordylura umbrosa* Loew femelle.

Caractères. — Face couverte d'une épaisse pruinosité blanche; deux grandes soies vibrissales et plusieurs petites plus ou moins développées. Occiput à pruinosité blanche ou argentée. — Une soie propleurale et un macrochète stigmatique. Ptéropleure nu. Pattes : fémurs I avec les soies internes et externes bien développées, fémurs II avec des soies antéro-internes, ces soies parfois confondues chez les mâles avec la villosité du fond; tibias I munis d'une soie subdorsale antérieure et d'une soie médiane subdorsale postérieure; bord interne sans soies; tibias III avec des soies subdorsales antérieures et des soies internes; partie postérieure avec des soies subdorsales. Ailes longues, nervure anale prolongée au bord de l'aile, nervure transverse *M2c* rectiligne, prolongement idéal de la petite transverse médiane dirigé au devant de l'apex de la première longitudinale (*R1*). Balanciers jaunes ou roux. — Femelle. Abdomen allongé : oviscapte robuste, comprimé latéralement (**fig. 13**).

Long. 7-11 mm.

Types des genres. — *Cordylura*, type : *Musca pubera* Linné. — *Lissa*, type : *L. carbonaria* Walker. — *Mosina*, type : *M. pubera* L.

Biologie. — Diptères communs ou très communs dans les endroits humides, sur les feuillages et les herbes dans les marais ou au bord des étangs.

Classification. — Le scutellum avec deux ou quatre soies marginales, la villosité du chète antennaire, la forme du troisième article des antennes, la couleur du corps et des pattes, la pruinosité plus ou moins étendue sont les principaux caractères qui permettent de distinguer les espèces.

LISTE DES ESPÈCES

1. *C. aberrans* Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Katal. Pal. Dipt., Vol. 4, p. 1 (1905); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 et 163 (1936); Sack, Cordyl., p. 18 (1937). *rufimana* Zetterstedt (*non* Meigen), Ins. Lapp. p. 726 (1838) et Dipt. Scand., Vol. 5, p. 2001 (1846).	Scandinavie, Laponie.
2. *C. acuticornis* Loew, Dipt. Amer. sept. ind., Cent. IX, p. 94 (1859); Aldrich, Catal. N. Amer. Dipt, p. 565 (1905).	Territ. de la Baie d'Hudson.
3. *C. adrogans* Cresson, Ent. News, Vol. 29, p. 135 (1918).	Etats-Unis d'Amérique.
4. *C. æa* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 978 (1849); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905).	Canada.
5. *C. alberta* Curran, Canad. Entom., Vol. 61, p. 132 (1929).	Banff : Alberta.
6. *C. albofasciata* Gimmerthal, Bull. Nat. Moscou, 4 Beitrag, p. 190,6 (1847); Becker, Katal. Pal. Dipt., Vol. 4, p. 1 (1905).	Russie.
7. *C. angustifrons* Loew, Dipt. Amer. sept. ind., Cent. III, p. 45 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905).	Wisconsin.
8. *C. apicata* Hendel, Ark. Zool., Vol. 21 A, n° 18, p. 4 (1930).	Kamtchatka : Petropavlovsk.
9. *C. aricioides* Zetterstedt, Dipt. Scand.; Vol. 12, p. 4765 (1855); Becker, Katal. Pal. Dipt., Vol. 4, p. 1 (1905).	Suède.
10. *C. atrata* Zetterstedt, Dipt. Scand., Vol. 5, p. 2002 (1846); Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Acta Soc. scient. Fenn., p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 1 (1905); Wingate, Durham Dipt., p. 297 (1906); Séguy, Faune de France, Vol. 28, p. 661 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 18 (1937). *nigra* Robineau-Desvoidy, Myodaires, p. 671 (1830) [*Mosina*]; Macquart, S. à Buffon, Vol. 2, p. 381 (1835). *picipes* Meigen, Syst. Beschr., Vol. 5, p. 232 (1826) [♀ *nec* ♂], *teste* Becker, Zs. Hymenopt. Dipt., Vol. 2, p. 213 (1902).	Europe cent. et sept., Laponie.
11. *C. beringensis* Malloch, N. Amer. Fauna, Vol. 46, p. 198 (1923).	Iles Pribiloff.
12. *C. Bezzii* Sack, *ap.* Lindner, Fliegen pal. Reg., Vol. 62, Cordyl., p. 18 (1937).	Alpes.
13. *C. bicolor* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 974 (1849); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905).	Canada.
14. *C. bisignata* Walker, Proc. Linn. Soc. Lond., Vol. 4, p. 142, 157 (1859); Wulp, Cat. Dipt. S. Asia, p. 161 (1896).	Macassar.
15. *C. brevicornis* van der Wulp, Biologia, Dipt., Vol. 2, p. 349, pl. 9; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905).	Mexique.
16. *C. Browni* Curran, Amer. Mus. Nov., n° 492, p. 12, figs (1931).	Canada, Québec.

17. C. *carbonaria* (Walker), List Dipt. Ins. Brit. Mus., Vol. 4, p. 1047 (1849) [*Lissa*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Amérique sept., Canada.
    gagatina Loew, Dipt. Amer. sept. ind., Cent. IX, p. 93 (1869).

18. C. *ciliata* Meigen, Syst. Beschr., Vol. 5, p. 231 (1826); Macquart, S. à Buff., Vol. 2, p. 381 (1835); Zetterstedt, Dipt. Scand., Vol. 5, p. 1999 (1846); Schiner, F. A., Vol. 2, p. 3 (1864); Rondani, Prodr., Vol. 7, Scatoph., p. 13 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Katal. Pal. Dipt., Vol. 4, p. 1 (1905); Meade, Ent. mon. Mag., p. 172 (1899); Wingate, Durham Dipt., p. 297 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 661 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 19 (1937). — Europe cent. et sept.

19. C. *confusa* Loew, Dipt. Amer. sept. ind., Cent. III, p. 43 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Canada.
    latifrons Loew, Dipt. Amer. sept. ind., Cent. IX, p. 92 (1869).
    pubera Walker (*nec* Linné), List Dipt. Brit. Mus., Vol. 4, p. 972 (1872).

20. C. *cornuta* Loew, Dipt. Amer. sept. ind., Cent. III, p. 48 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Canada.

21. C. *Criddlei* Curran, Canad. entom., Vol. 61, p. 131 (1929). — Amérique sept., Nicola B. C.

22. C. *cupricrus* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 974 (1872); Aldrich, Catal. N. Amer. Dipt. 565 (1905). — Canada.

23. C. *Dejeani* (Robineau Desvoidy), Myodaires, p. 671 (1830) [*Mosina*); Macquart, S. à Buff., Vol. 2, p. 382 (1835); Meigen, Syst. Beschr., Vol. 7, p. 340 (1838); Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905). — France.

24. C. *fasciventris* Curran, Canad. entom. Vol. 59, p. 258 (1927). — Amérique sept., Agassiz B. C. Mt. Washington N. H.
    var. *fulvithorax* Curran, Canad. entom. Vol. 61, p. 131 (1929). — Banff, Alberta.

25. C. *flava* Wiedemann, Ausser. zweifl. Ins., Vol. 2, p. 446 (1830); Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905); Bezzi, Bull. Soc. entom. Ital., A, Vol. 39, p. 121 (1908). — Egypte.

26. C. *flavipennis* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 975 (1872); Aldrich, Catal. N. Amer. Dipt., p., 565 (1905). — Canada.

27. C. *flavipes* Loew, Dipt. Amer. sept. ind., Cent. III, p. 46 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Amérique sept.

28. C. *flavovenosa* Becker, Berlin. entom. Zs., Vol. 39, p. 92 (1894) et Katal. Dipt., Vol. 4, p. 2 (1905); Wingate, Durham Dipt., p. 297 (1906); Sack, Cordyl., p. 19 (1937). — Pologne.

29. C. *fuscipennis* Gimmerthal, Bull. Moscou, Vol. 4, p. 190 (1847); Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905). — Russie.

30. C. *gilvipes* Loew, Dipt. Amer. sept. ind., Cent. III, p. 49 (1863); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Canada.

31. C. *glabra* Loew, Dipt. Amer. sept. ind., Cent. IX, p. 90 (1869); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Amérique sept.

32. C. *gracilipes* (Loew), Dipt. Amer. sept. ind., Cent. IX, p. 87 (1869) [*Parallelomma*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Amérique sept.

33. C. *imperator* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 975 (1872); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). — Canada.

34. C. *inversa* Curran, Canad. Ent., Vol. 61, p. 131 (1929). Amérique sept. Oliver B. C.

35. C. *latigenis* Hendel, Ark. Zool., Vol. 21 A, nº 18, p. 3 (1930). Kamtchatka: Petropavlovsk.

36. C. *Latreillei* (Robineau-Desvoidy), Myodaires, p. 671 (1830) [*Mosina*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905). France.

37. C. *longa* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 976 (1872); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). Canada, Martin Falls.

38. C. *lutea* Loew, Dipt. Amer. sept. ind., Cent. X, p. 75 (1872); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). Arch. Alexandre: Sitka.

39. C. *luteola* Malloch, Pan-Pacific Ent., Vol. 1, p. 14 (1924). Oregon.

40. C. *marginipennis* Gimmerthal, Bull. Nat. Moscou, Vol. 2, p. 189 (1847); Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905). Russie.

41. C. *masconina* Curran, Amer. Mus. Nov., nº 492, p. 11, figs. (1931). Canada: Québec.

42. C. *nana* (Loew), Dipt. Amer. sept. ind., Cent. V, p. 94 (1864) [*Scatophaga*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). Canada, New Hampshire, White Mountains.

43. C. *nigripila* Zetterstedt, Dipt. Scand., Vol. 14, 6328 (1860); Becker, Katal. Pal. Dipt., Vol. 4, p. 2 (1905); Ringdahl, Ent. Tidskr., Vol. 57, p. 162 (1936). Laponie.

44. C. *nigrithorax* Hendel, Ark. Zool., Vol. 21 A, nº 18, p. 5 (1930). Kamtchatka: Petropavlvosk.

45. C. *ontario* Curran, Canad. Entom., Vol. 61, p. 132 (1929). Ottawa: Ontario.

46. C. *passiva* Curran, Canad. Entom., Vol. 61, p. 130 (1929). Colorado.

47. C. *picipes* Meigen, Syst. Beschr., Vol. 5, p. 232 (♂ nec ♀) [1826]; Becker, Zs. Hymenopt. Dipt., Vol. 2, p. 213 (1902); Séguy, Faune de France, Vol. 28, p. 661 (1934); Sack, Cordyl., p. 19 (1937). Europe cent. et occid.

   biseta Loew, Wien. entom. Monatschr., Vol. 8, p. 21 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 93 (1894) et Katal. Pal. Dipt., Vol. 4, p. 1 (1905); Meade, Entom. mon. Mag. p. 172 (1899); Pandellé, Revue Entom. p. 322 (1901); Wingate, Durham Dipt., p. 298 (1906).

48. C. *picticornis* Loew, Wien. entom. Monatschr., Vol. 8, p. 22 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 93 (1894) et Acta Soc. Scient. Fenn. Vol., 26, p. 48,81 (1900) et Katal. Pal. Dipt., Vol. 4, p. 2 (1905); Wingate, Durham Dipt., p. 297 (1906); Sack, Cordyl., p. 20 (1937). Sibérie.

49. C. *pictipennis* Loew, Wien. entom. Monatschr., Vol. 8, p. 22 (1864); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905). Sibérie, Amérique boréale.

50. C. *præusta* Loew, Dipt. Amer. sept. ind., Cent. V, p. 93 (1864); Coquillett, Proc. Wash. Acad. Sc., Vol. 2, p. 456 (1900); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905); Malloch, Ent. News, XXXIV, p. 175 (1923). New Hampshire, Alaska: Berg Bay.

51. C. *proboscidea* Zetterstedt, Ins. Lapp., p. 728 (1838) et Dipt. Scand. Vol. 5, p. 2027 (1846); Becker, Berlin. entom. Zs., Vol. 39, p. 92 (1892) et Acta Soc. Sc. Fennicæ, Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 2 (1905); Wingate, Durham Dipt., p. 298 (1906); Ringdahl. Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 20 (1937). Laponie.

52. C. *pubera* (Linné), Fauna Suec., 1855 (1761) [*Musca*]; Fabricius, Spec. Ins, Vol. 2, p. 44 (1781) [*Musca*]; Gmelin, Syst. Nat., Vol. 5, p. 2850 (1788) [*Musca*]; Fabricius, Syst. Antl., Toute l'Europe, Arkhangel, Sibérie.

p. 315 (1805) [*Ocyptera*]; Fallén, Dipt. Suec., Scatomyz., p. 6 (1819); Meigen, System. Beschr., Vol. 5, p. 230 (1826); Robineau-Desvoidy, Myodaires, p. 671 (1830) [*Mosina*]; Macquart, S. à Buff., Vol. 2, p. 381 (1835); Zetterstedt, Ins. Lapp., p. 725 (1839) et Dipt. Scand. Vol. 5, p. 1995 (1846); Schiner, F. A., Vol. 2, p. 2 (1864); Rondani, Prodr., Vol. 7, Scatophag., p. 13 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 2 (1905); Meade, Entom. mon. Mag., p. 171 (1899); Pandellé, Rev. Entom., p. 320 (1901); Wingate, Durham Dipt., p. 297 (1906); Séguy, Faune de France, Vol. 28, p. 662 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 21 (1937).

rufipes Meigen, Syst. Beschr., Vol. 5, p. 232 (1826); Becker, Zs. Hymenopt. Dipt., Vol. 2, p. 213 (1902); Pandellé, Rev. Entom. p. 351, var. 7 (1901).

53. *C. pudica* Meigen, System. Beschr., Vol. 5, p. 231 (1826); Macquart, S. à Buff., Vol. 2, p. 382 (1835); Schiner, F. A., Vol. 2, p. 2 (1864); Meade, Entom. mon. Mag., p. 171 (1899); Wingate, Durham Dipt., p. 297 (1906); Séguy, Faune de France, Vol. 28, p. 663 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 21 (1937). — Toute l'Europe, Arkhangel.

geniculata Zetterstedt (*nec* Macquart), Ins. Lapp., p. 725 (1838) et Dipt. Scand., Vol. 5, p. 1997 (1846).

var. *impudica* Rondani, Prodrom., Vol. 7, Scatophag., p. 13 (1866), *teste* Sack., l. c., p. 22. — Italie.

54. *C. rubrifrontata* Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905); Sack, Cordyl., p. 22 (1937). — Irkoutsk (Kultuk).

55. *C. rufimana* Meigen, Syst. Beschr., Vol. 5, p. 232 (1826); Macquart, S. à Buff., Vol. 2, p. 382 (1855); Schiner, F. A., Vol. 2, p. 3 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 91 (1894) et Acta Soc. Sc. Fennicæ, Vol. 26, p. 48 (1900) et Katal. Dipt., Vol. 4, p. 3 (1905); Meade, Entom. mon. Mag., p. 171 (1899); Pandellé, Rev. Entom., p. 321 (1901); Wingate, Durham Dipt., p. 298 (1906); Séguy, Faune de France, Vol. 28, p. 661 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 22 (1937). — Europe cent. et sept., Sibérie, Laponie suédoise.

aberrans Pandellé (*nec* Becker), Rev. Entom., p. 321, var. 4 (1901).
incerta Zetterstedt, Ins. Lapp., p. 690 var (1839) [*Anthomyza*].
tibialis Zetterstedt, Ins. Lapp., p. 725 (1839) et Dipt. Scand., Vol. 5, p. 2000 (1846); Schiner, F. A., Vol. 2, p. 3 (1864).

56. *C. scapularis* Loew, Dipt. Amer. sept. ind., Cent. IX, p. 89 (1869); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Canada.

57. *C. setosa* Loew, Wien. entom. Monatschr., Vol. 4, p. 81, (1860) et Dipt. Amer. sept. ind., Cent. III, p. 44 (1863); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — New Jersey.

58. *C. similis* Siebke, Nyt. Mag., p. 54,333 (1842) et Catal. Dipt. Norveg., p. 140 (1877); Becker, Katal. Pal. Dipt., Vol. 4, p. 3 (1905). — Norvège.

59. *C. socialis* Becker, Berlin. entom. Zs., Vol. 39, p. 90 (1894) et Katal. Pal. Dipt., Vol. 4, p. 3 (1905); Wingate, Durham Dipt., p. 297 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl. p. 23 (1937). — Scandinavie.

pudica Zetterstedt (*non* Meigen), Dipt. Scand., Vol. 5, p. 1998 (1846); Rondani, Prodr., Vol. 7, Scatophag., p. 14 (1866).

60. *C. tenuior* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 977 (1872); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Canada, Martin Falls.

61. *C. terminalis* Loew, Dipt. Amer. sept. ind., Cent. III, p. 39 (1863); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Pensylvanie.

62. *C. tricincta* (Loew), Dipt. Amer. sept. ind., Cent. IX, p. 83 (1869) [*Coenosia*]; Aldrich, Catal. N. Amer. Dipt., p. 566 (1905); Frost, Entom. News, Vol. 43, p. 75 (1932). — Amérique sept., Etats-Unis.

flavida Coquillett, Proc. U. S. Nat. Mus., Vol. 23, p. 612 (1901) [*Hexamitocera*]; Aldrich, l. c., p. 567 (1905), *teste* Curran *ap.* Frost, l. c., p. 75 (1932).

La larve mine les feuilles du *Smilacina racemosa* Desf., et peut-être celles du *Polygonatum commutatum* A. Dietr. (*giganteum* A. Dietr.).

63. *C. umbrosa* Loew, Europ. Dipt., Vol. 3, p. 246 (1873); Becker, Berlin. entom. Zs., Vol. 39, p. 93 (1894) et Katal. Pal. Dipt. Vol. 4, p. 3 (1905); Meade, Entom. mon. Mag., p. 171 (1899); Wingate, Durham Dipt., p. 298 (1906); Séguy, Faune de France, Vol. 28, p. 663 (1934); Sack, Cordyl., p. 23 (1937). — Europe cent. et occid., Angleterre

64. *C. variabilis* Loew, Zs. Ges. Naturwiss., p. 326 (1876); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Etats-Unis d'Amérique.

65. *C. varicornis* Curran, Canad. Entom., Vol. 61, p. 130 (1929). — Alberta : Banff.

66. *C. Viereckі* Cresson, Entom. News, Vol. 29, p. 134 (1918). — Etats-Unis d'Amérique.

67. *C. vicina* v. d. Wulp, Biologia Centr. Amer., Dipt. II, p. 350 (1897); Aldrich. Catal. N. Amer. Dipt., p. 566 (1905). — Mexique, Guerrero.

68. *C. vittipes* Loew, Dipt. Amer. sept. ind., Cent. X, p. 74 (1872); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — Sitka, Alaska, zone de l'Hudson.

69. *C. volucricaput* Walker, List Dipt. Ins. Brit. Mus., Vol. 4, p. 977 (1872); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905). — New Hampshire : White Mts.

70. *C. Zetterstedti* Gimmerthal, Bull. Nat. Moscou, Vol. 4, p. 190,4 (1847); Becker, Katal. Pal. Dipt., Vol. 4, p. 3 (1905). — Russie.

13. Genus CORDYLURELLA Malloch

Cordylurella Malloch, Rep. Canad. Arct. Exped., p. 76 c, 78 c (1919); Curran, Canad. Ent., Vol. 61, p. 133 (1929) et North Amer. Dipt., p. 389 (1934).

Caractères. — Tête subsphérique vue de dessus, légèrement aplatie postérieurement; espace interoculaire égal au moins au tiers de la largeur de la tête; orbites différenciées. Chétotaxie céphalique bien développée, comparable à celle des *Cordylura*. Antennes légèrement plus courtes que la face; troisième article arrondi apicalement; chète pubescent. Palpes élargis, dépourvus de forte soie apicale. — Chétotaxie thoracique et pattes comme chez les *Cordylura*. Ailes : première nervure normalement nue, exceptionnellement ciliée, sixième non prolongée à la marge (Malloch).

Long. 6-8 mm.

Type du genre. — *Cordylura nebulosa* Coquillett.

Répartition géographique. — Amérique septentrionale et boréale.

LISTE DES ESPÈCES

1. *C. costalis* Curran, Canad. Entom., Vol. 61, p. 133 (1929). — Canada : Covey Hill, Que.

2. *C. nebulosa* (Coquillett), Journ. N. Y. ent. Soc., Vol. 6, p. 164 (1898) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905), *teste* Malloch, l. c., p. 78 c. — Illinois, Algonquin.

3. *C. rufula* Curran, Canad. Entom., Vol. 59, p. 257 (1927). Canada : Aylmer, Que.

4. *C. subvittata* Malloch, Rep. Canad. Arct. Exped., p. 78 c (1919). Canada, N. O. Détroit de l'Union et du Dauphin, Port Bernard.

14. Genus MICROPSELAPHA Becker

Micropselapha Becker, Berlin. entom. Zs., Vol. 39, p. 108 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Wingate, Durham Dipt., p. 292 (1906); Stackelberg, Mouches de l'URSS, p. 491 (1933); Curran, North Amer. Dipt., p. 389 (1934); Séguy, Faune de France, Vol. 28, p. 670 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 36 (1937).

Caractères. — Tête subquadrangulaire en profil. Yeux très grands, occupant presque toute la tête. Espace interoculaire saillant, sept ou huit paires de soies orbitales fines. Face légèrement enfoncée, bords du péristome peu saillants, angle vibrissal nul : une seule vibrisse. Palpes très petits, filiformes. Antennes à peu près aussi longues que la face; troisième article au moins quatre fois aussi long que le deuxième, arrondi à l'apex; chète épaissi à la base, à pilosité rase. — Thorax avec quatre paires de dorsocentrales (1+3); une soie et une douzaine de chétules satellites sur le calus huméral, deux post-humérales, trois supraalaires; scutellum avec deux soies médianes et deux cils apicaux; une ou deux mésopleurales faibles, deux propleurales, une sternopleurale. Ptéropleure nu. Pattes dénudées; tibias postérieurs avec une paire de soies externes. — Abdomen court (fig. 14).

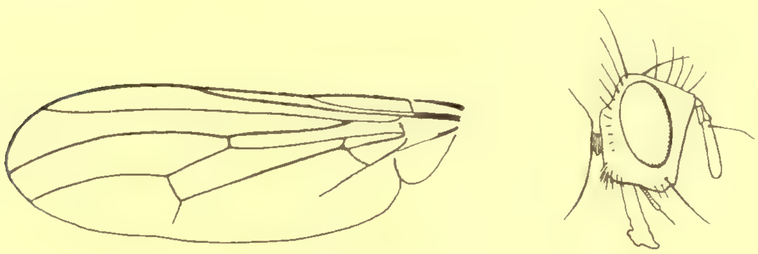


Fig. 14.

Micropselapha filiformis (Zetterstedt), aile et tête du mâle × 8.

Long. 4-6 mm.

Type du genre. — *Cordylura filiformis* Zetterstedt.

Répartition géographique. — Europe centrale et septentrionale. Amérique septentrionale.

LISTE DES ESPÈCES

1. *M. albifacies* Johnson, Occ. Pprs Boston Soc. Nat. Hist., Vol. 5, p. 23 (1922). Amérique sept., Maine.

2. *M. filiformis* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2025 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 109, pl. 5 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Wingate, Durham Dipt., p. 292 (1906); Séguy, Faune de France, Vol. 28, p. 670 (1934); Sack, Cordyl., p. 36 (1937). Bohême, Silésie, Scandinavie, Laponie.

15. Genus SCOLIAPHLEPS Becker

Scoliaphleps Becker, Berlin. entom. Zs., Vol. 39, p. 98 (1894) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Malloch, Rep. Canad. Arct. Exp., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 489 (1933); Curran, North Amer. Dipt., p. 388 (1934); Séguy, Faune de France, Vol. 28, p. 670 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 28 (1937).

Caractères. — Palpes longs et minces. Deuxième article de l'antenne à peine saillant sur le troisième. Chète antennaire court. — Mésonotum couvert antérieurement d'une pruinosité légère; cinq soies dorsocentrales, trois supraalaires, deux intraalaires; quatre scutellaires; propleurale ciliforme; une ou deux fines mésopleurales; une sternopleurale. Ptéropleure nu. Ailes légèrement brunies à l'apex : première nervure radiale forte, troisième et quatrième longitudinales formant une large fourche; petite nervure transverse réduite à une bride; nervure transverse apicale (M2c) courbée et rapprochée du bord de l'aile. Corps d'un noir brillant, à villosité forte et soies robustes (**fig. 15**).

Long. 7,5 mm.

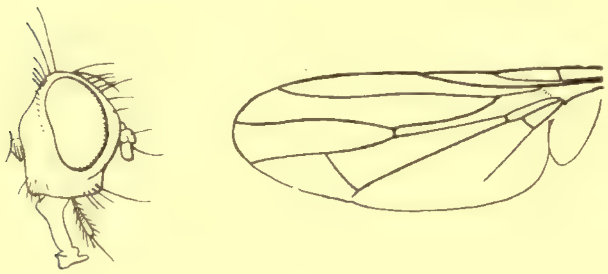


Fig. 15.

Scoliaphleps ustulata (Zetterstedt), profil de la tête du mâle et aile × 9

Type du genre. — *Cordylura ustulata* Zetterstedt.

Repartition géographique. — Europe centrale et septentrionale.

LISTE DES ESPÈCES

1. *S. melanacra* (Loew), Europ. Dipt., Vol. 3, p. 247 (1873) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 99 (1899) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905) [*S. melaneura*]; Wingate, Durham Dipt., p. 291 (1906); Séguy, Faune de France, Vol. 28, p. 670 (1934); Sack, Cordyl., p. 29 (1937).	Europe cent. et sept.
2. *S. ustutata* (Zetterstedt), Ins. Lapp., p. 727 (1839) et Dipt. Scand., Vol. 5, p. 2013 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 98 (1899); Wingate, Durham Dipt. p. 291 (1906); Séguy, Faune de France, Vol. 28, p. 671 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 29 (1937).	Europe cent. et sept., Laponie.
var. *hyalinipennis* Ringdahl, Entom. Tidskr., vol. 57, p. 163 (1936).	Europe sept.

16. Genus NEOGYMNOMERA Malloch

Neogimnomera Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 36 (1920); Curran, North Amer. Dipt., p. 388 (1934).

Caractères. — Tête subrectangulaire. Yeux arrondis. Palpes munis d'une longue soie apicale. Chète pubescent. — Soies propleurales bien développées. Soie stigmatique nulle. Soies intraalaires courtes, mais distinctes. Ptéropleures nus. Aile : troisième nervure longitudinale rectiligne. — Femelle : abdomen non comprimé latéralement à l'apex (Malloch).

Type du genre. — *Cordylura amans* Cresson.

Répartition géographique :

1. *N. amans* (Cresson), Entom. News, Vol. 29, p. 134 (1918) [*Cordylura*].	Etats-Unis d'Amérique : Oregon.

17. GENUS DASYPLEURON MALLOCH

Dasypleuron Malloch, Rep. Canad. Arct. Exped., p. 76c et 79c (1919); Curran, North Amer. Dipt., p. 387 (1934).

Caractères. — Tête comme chez les *Cordylurella*, chète antennaire pubescent. Chétotaxie thoracique semblable à celle du *Cordylura confusa* Loew; partie centrale du ptéropleure avec de nombreuses et longues soies molles. Pattes normales. Aile : première nervure ciliée sur la partie apicale; sixième nervure courte, n'atteignant pas la marge de l'aile. — Abdomen court, épais, hypopyge étendu sur plus de la moitié de la face sternale, forceps chitinisé, épais, semblable à celui du *Cordylurella subvittata*, mais plus développé (Malloch).

Long. 4-5 mm.

Type du genre. — *Dasypleuron tibialis* Malloch.

Répartition géographique :

1. *D. tibialis* Malloch, Rep. Canad. Arct. Exped., p. 79 c (1919). Alaska.

18. GENUS MEGAPHTHALMOIDES RINGDAHL

Megaphthalmoides Ringdahl, Ent. Tidskr., Vol. 57, p. 161, 164 et 179 (1936).

Caractères. — Chète antennaire à villosité épaisse. Ptéropleure à villosité antérieure manifeste; soie stigmatique antérieure nulle; deux longues soies mésopleurales. Scutellum triangulaire, avec quatre longues soies. Tibias antérieurs avec une soie médiane; tibias intermediaires avec une soie interne. Ailes : bord costal cilié, une petite épine costale; première nervure longitudinale nue (Ringdahl).

Long. 5 mm.

Type du genre. — *Cordylura unilineata* Zetterstedt.

Répartition géographique. — Région holarctique.

1. *M. unilineata* (Zetterstedt), Ins. Lappon., p. 727 (1839) et Dipt. Scand., Vol. 5, p. 2010 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 107 (1894) et Katal. Pal. Dipt. Vol. 4, p. 6 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905) [*Megophthalma*]; Séguy, Faune de France, Vol. 28, p. 669, nota (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 179 (1936); Sack, Cordyl., p. 35 (1937) [*Megophthalma*]. Europe cent. et boréale, Laponie Amérique sept., Alaska.

19. GENUS HEXAMITOCERA BECKER

Hexamitocera Becker, Berlin. entom. Zs., Vol. 39, p. 107 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 292 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 490 (1933); Curran, North Amer. Dipt., p. 390 (1934); Séguy, Faune de France, Vol. 28, p. 669 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 35 (1937).

Caractères. — Tête quadrangulaire; front saillant, six soies orbitales; occiput fortement gonflé. Angle vibrissal à soies faibles, toujours deux vibrisses bien développées, angle péristomal postérieur avec une seule forte soie. Palpes aussi longs ou plus longs que la trompe, nus et sans soie apicale. Antennes minces, aussi longues que la face, troisième article arrondi à l'apex; chète antennaire grêle et nu, épaissi à la base. — Thorax : quatre paires de soies dorsocentrales (2+2), deux humérales, deux posthumérales, une présuturale, trois supra-alaires, deux intraalaires; scutellum avec deux fortes soies marginales et deux cils apicaux. Deux mésopleurales, deux sternopleurales, une propleurale. Ptéropleure cilié. Tibias postérieurs avec deux paires de soies externes. Ailes : première nervure (*R1*) ciliée. — Abdomen étroit, allongé; tergites bordés avec de fortes soies marginales (fig. 16).

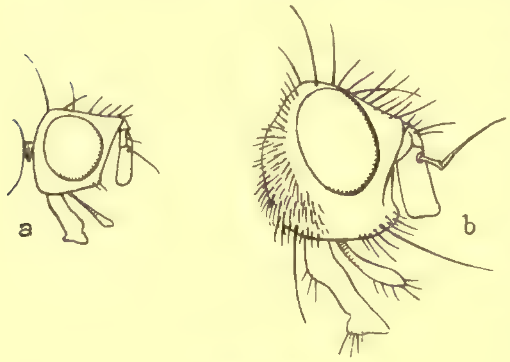


Fig. 16.

a. *Hexamitocera loxocerata* (Fallén), profil de la tête du mâle × 9;
b. *Gonatherus planiceps* (Fallén), profil de la tête du mâle × 12.

Type du genre. — *Cordylura loxocerata* Fallén.

Répartition géographique. — Région holarctique.

LISTE DES ESPÈCES

1. *H. cornuta* (Walker), List spec. Dipt. Ins. Brit. Mus., Vol. 4, p. 1047 (1849) [*Cordylura*]; Coquillett, Proc. Wash. Acad. Sc., II, p. 456 (1900); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905).	Canada : Martin Falls, Alaska.
2. *H. loxocerata* (Fallén), Dipt. Suec., Scatomyz., Suppl. 2, p. 12 (1819) [*Cordylura*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2029 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 108 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Wingate, Durham Dipt., p. 292 (1906); Bezzi, Mem. Soc. ital. Sc. nat. Milan, Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 670 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 35 (1937). *longifrons* Zetterstedt, Ins. Lappon., p. 729 (1838) [*Cordylura*].	Europe cent. et sept., Laponie.
3. *H. vittata* Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 165 (1898); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905).	Colorado.

20. Genus GONATHERUS Rondani

Gonatherus Rondani, Prodromus, Vol. 1, p. 99 (1856) et Vol. 7, p. 9 (1866); Becker, Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 292 (1906); Malloch, Rep. Canad. Arct. Exp., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 490 (1933); Curran, North Amer. Dipt., p. 391 (1934); Séguy, Faune de France, Vol. 28, p. 649 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 31 (1937).

Caractères. — Front saillant, face oblique. Yeux arrondis. Une grande vibrisse et trois ou quatre soies plus courtes dans l'angle vibrissal, un autre macrochète dans l'angle péristomal postérieur. Trompe mince; palpes étroits, légèrement dilatés à l'extrémité. Antennes : troisième article anguleux à

l'apex antérieur ; chète coudé, deuxième article allongé, légèrement courbé, article apical épaissi à la base (**fig. 16**). — Thorax : cinq dorsocentrales, deux humérales, deux posthumérales, une présuturale, deux intraalaires, trois supraalaires ; quatre scutellaires ; une soie propleurale, trois mésopleurales, deux sternopleurales. Ptéropleure cilié. Tibias postérieurs munis de trois paires de soies externes. Ailes courtes, arrondies à l'apex.

Long. 3-5 mm.

Type du genre. — *Cordylura planiceps* Fallén.

Répartition géographique. — Régions boréales de la zone holarctique.

LISTE DES ESPÈCES

1. *G. atricornis* Malloch, Rep. Canad. Arct. Exped., p. 77 (1919). — Canada sept., Détroit de l'Union et du Dauphin.

2. *G. fumipennis* Hendel, Ark. Zool., Vol. 21, nº 18, p. 7 (1930). — Kamtchaka : Klutchi.

3. *G. planiceps* (Fallén), Dipt. Suec., Scatomyz., Suppl. 2, p. 12 (1819) [*Cordylura*]; Zetterstedt, Ins. Lappon., p. 732 (1839) et Dipt. Scand., Vol. 5, p. 2058 (1846) [*Cordylura*]; Rondani, Prodrom., Vol. 7, Scatophag., p. 10 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 102 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 292 (1906); Séguy, Faune de France, Vol. 28, p. 674 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 32. — Europe cent. et sept., Laponie.
   Friesi Zetterstedt, Ins. Lapp., p. 729 (1838) et Dipt. Scand., Vol. 5, p. 2057 (1846) et Vol. 8, p. 3337 (1849) [*Cordylura*]; Schiner, F.A., Vol. 2, p. 11 (1864) [*Cleigastra*].

21. Genus PLETHOCHÆTA Coquillett

Plethochæta Coquillett, Proc. U. S. Nat. Mus., Vol. 23, p. 613 (1901); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919); Curran, North Amer. Dipt., p. 390 (1934).

Caractères. — Partie inférieure de la tête avec une dizaine de longues soies disposées en frange péristomale. Trompe courte, subégale à la moitié de la hauteur de la tête. Palpes munis d'une longue et forte soie apicale noire. Antennes étendues sur les trois-cinquièmes de la hauteur de la face; troisième article légèrement plus long que le second. Chète nu. — Trois sternopleurales. Scutellum avec six soies marginales. Ptéropleure cilié. Ailes : costale inerme, sans spinules; nervure anale prolongée à la marge.

Long. 8 mm.

Type du genre. — *Pletochæta varicolor* Coquillett.

Répartition géographique :

1. *P. varicolor* Coquillett, Proc. U. S. Nat. Mus., Vol. 23, p. 614 (1901); Aldrich, Catal. N. Amer. Dipt., p. 570 (1905). — Colorado, Pensylvanie.

22. Genus AMAUROSOMA Becker

Amaurosoma Becker, Berlin. ent. Zs., Vol. 39, p. 109 (1894) et Kat. Pal. Dipt., Vol. 4, p. 6 (1905); Wingate, Durham Dipt., p. 299 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919) et Bull. Brooklyn Ent. Soc., Vol. 17, p. 77 (1922); Johnson, Psyche, Vol. 34, p. 100 (1927); Curran, Canad. Ent., Vol. 59, p. 293 (1927) et North Amer. Dipt., p. 390 (1934); Hendel, Ark. Zool., Vol. 21 A, n° 18, p. 9 (1930); Stackelberg, Mouches de l'URSS, p. 491 (1933); Séguy, Faune de France, Vol. 28, p. 677 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 36 (1937).

Caractères. — Tête trapézienne en profil, yeux en ovale court, péristome subégal à la largeur du troisième article antennaire. Espace interoculaire légèrement renflé, cinq ou six orbitales courtes et fines : deux supérieures, quatre inférieures; verticale interne forte; soies occipitales faibles. Face plane, la marge inférieure formant un angle aigu avec le péristome. Une grande vibrisse et deux-quatre péristomales fines. Occiput renflé. Trompe grêle; palpes allongés, régulièrement et progressivement renflés vers l'apex. Antennes longues, troisième article près de trois fois plus long que large; chète allongé, pratiquement nu ou couvert d'une pubescence très courte (**fig. 17**). — Cinq soies dorsocentrales (2+3); acrosticales piliformes, deux humérales, deux posthumérales, quatre supra-alaires, deux intraalaires. Scutellum avec deux longues soies latérales et deux cils apicaux. Une ou deux propleurales; stigmatique chétiforme; trois ou quatre mésopleurales et quelques cils décolorés; deux ou trois sternopleurales. Ptéropleure cilié. Tibias postérieurs avec deux soies plantées au même niveau sur la partie moyenne de la face externe; griffes et pelotes courtes ou très courtes. Ailes : nervures transverses rapprochées, troisième et quatrième longitudinales parallèles à l'apex; première nervure radiale nue; première nervure anale prolongée au bord de l'aile, au moins comme trace.

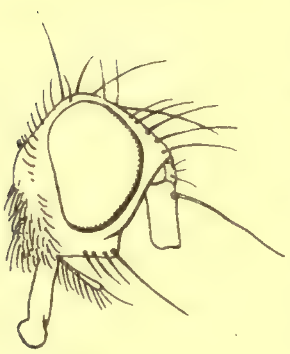


Fig. 17.

Amaurosoma fasciatum (Meigen), profil de la tête du mâle × 12.

M â l e. — Abdomen couvert de macrochètes blancs et noirs dressés; apex légèrement renflé; lamelle prégénitale à lobes plus ou moins développés et pendants.

F e m e l l e. — Macrochètes noirs plus nombreux; oviscapte peu saillant ou rétracté.

Long. 4-7 mm.

Type du genre. — *Cordylura flavipes* Fallén.

Biologie. — Les larves connues sont nuisibles à certaines Graminées. Les imagos sont anthophiles.

Répartition géographique. — Toute la région holarctique, surtout dans les contrées boréales.

LISTE DES ESPÈCES

1. *A. Alberta* Curran, Canad. Entom., Vol. 59, p. 293 (1927). — Alberta.
2. *A. albipilum* Ringdahl, Ent. Tidskr., Vol. 57, p. 177 (1936). — Suède.
3. *A. armillatum* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2069 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 120 (1894) et Kat. Pal. Dipt., Vol. 4, p. 6, (1905); Wingate, Durham Dipt., p. 301 (1906); Sorauer-Reh, Pflanzenkrankheiten, — Europe cent. et sept.

Vol. 5, p. 32 (1932); Séguy, Faune de France, Vol. 28, p. 678 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 38 (1937).

obscura var. 2, Pandellé, Rev. Entom., p. 305 (1901).

Larve nuisible au *Phleum pratense* L. et au *Secale cereale* L.

4. *A. articulatum* Becker, Berlin. entom. Zs., Vol. 39, p. 117 (1894) et Katal. Pal. Dipt., Vol. 4, p. 6 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 37 et 39 (1937). — Europe cent.

5. *A. atripes* Malloch, Ann. Mag. N. H., (10), Vol. 8, p. 436 (1931). — Ile Herschell.

6. *A. bispinosum* Malloch, Ohio Jl. Science, Vol 20, p. 285 (1920). — Alaska.

7. *A. brevifrons* (Zetterstedt), Ins. Lapp., p. 729 (1839) et Dipt. Scand., Vol. 5, p. 2062 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 11 (1864) [*Cleigastra*]; Becker, Berlin. entom. Zs., Vol. 39, p. 115 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 299 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 39 (1937). — Europe cent. et sept., Arkhangel.

8. *A. brunneicosta* Johnson, Psyche, Vol. 34, p. 100 (1927). — Etats-Unis d'Amérique.

9. *A. carbonarium* Hendel, Ark. Zool., Vol. 21 A, n° 18, p. 11 (1930). — Kamtchatka : Klutchi.

10. *A. cinerellum* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2070 (1846) [*Cordylura*]; Becker, Berlin. ent. Zs., Vol. 39, p. 119 (1894) et Kat. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 677 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 38 (1937). — Europe cent. et sept.

11. *A. fasciatum* (Meigen), Syst. Beschr., Vol. 5, p. 238 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 387 (1835) [*Cleigastra*]; Becker, Berlin. ent. Zs., Vol. 39, p. 118 (1894) et Kat. Pal. Dipt., Vol. 4, p. 7 (1905); Meade, Ent. mon. Mag., p. 217 (1899); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 677 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 39 (1937). — Europe cent. et sept.

brevipenne Curtis, Brit. Entom., p. 405,28 (1832) [*Cordylura*]; *teste* Verrall, List of Brit. Dipt., p. 29-36 (1901).

flavipes var. 2, Pandellé, Rev. Entom., p. 305 (1901) [*Cnemopogon*].

obscura Meigen (*nec* Fallén), Syst. Beschr., Vol. 5, p. 240 (1826) [*Cordylura*]; *teste* Becker, Zs. Hym. Dipt., Vol. 2, p. 215 (1902).

12. *A. flavipes* (Fallén), Dipt. Suec., Scatomyz., p. 9 (1819) [*Cordylura*]; Meigen, Syst. Beschr. Vol. 5, p. 239 (1826) [*Cordylura*]; Zetterstedt, Ins. Lapp., p. 730 (1839) et Dipt. Scand., Vol. 5, p. 2059 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 11 (1864) [*Cleigastra*]; Rondani, Prodr., Vol. 7, p. 20 (1866) [*Cleigastra*]; Lindeman, Bull. Soc. imp. Natur. Moscou, p. 199 (1887); Becker, Berlin. entom. Zs., Vol. 39, p. 114 (1894) et Acta Soc. scient. Fenn., Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Reuter, Acta Soc. Fauna Flora Fenn., Vol. 19, p. 101 (1900); Pandellé, Rev. Entom., p. 305 (1901) [*Cnemopogon*]; Wingate, Durham Dipt., p. 300 (1906); Korff, Nachrich. deutsch. Pflanzensch., Vol. 1, p. 13 (1921); Kar- — Europe, Sibérie.

powa, Izwiestia Prikla. Entom., Vol. 4, 2, p. 431 (1930); Sorauer-Reh, Pflanzenkrank., Vol. 5, p. 32 (1932); Séguy, Faune de France, Vol. 28, p. 678 (1934); Balachowsky et Mesnil, Ins. nuis., p. 1053 (1935); Barnes, Ann. appl. Biol., Vol. 22, p. 259 (1935); King, Meikle et Broadfoot, Ann. appl. Biol., Vol. 22, p. 267 (1935); Oettingen, Nachr. Schädl., Vol. 10, p. 62 (1935); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 40 (1937); Wahl, Arb. phys. angew. Ent. Berlin-Dahlem, Vol. 10, p. 90 (1943); Golebiowska, Ann. Univ. Mariæ Curie, E., Vol. 4, p. 1 (1949).

flavipes var. 1, Pandellé, Revue Entom. p. 305 (1901) [*Cnemopogon*].

frontale Macquart, S. à Buff., Vol. 2, p. 387 (1835) [*Cleigastra*]; Meigen, Syst. Beschr. Vol. 7, p. 341 (1838) [*Cordylura*]; Becker, Zs. Hymenopt. Dipter., Vol. 2, p. 216 (1902); Séguy, Faune de France, Vol. 28, p. 683 (1934); Sack, Cordyl., p. 96 (1937).

trilineata Meigen, System. Beschr., Vol. 7, p. 341 (1838) [*Cordylura*].

Larve nuisible au *Phleum pratense* L. et au *Secale cereale* L.

13. *A. inerme* Becker, Berlin. entom. Zs., Vol. 39, p. 119 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 680 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 178 (1936); Sack, Cordyl., p. 40 (1937). — Europe cent. et orient.

14. *A. kamtschatkense* Hendel, Ark. Zool., Vol. 21, A, n° 18, p. 9 (1930). — Kamtchatka : Klutchi.

var. *variofemoratum* Hendel, l. c., p. 10 (1930).

15. *A. katmaiense* Malloch, Ohio Journ. Sc., Vol. 20, p. 284 (1920). — Alaska.

16. *A. Klickai* Vimmer, Acta Soc. ent. Cech., Vol. 34, p. 118 (1937). — Bohème.

17. *A. leucochætum* de Meijere, Tijdschr. Ent., Vol. 50, p. 180 (1907). — Hollande.

18. *A. leucostoma* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2063 (1846). [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 117 (1894) et Acta Soc. scient. Fenn., Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 7 (1906); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 40 (1937). — Europe cent. et sept., Arkhangel, Sibérie.

19. *A. longicorne* (von Röser), Wurttemb. Corrbl., p. 59 (1840) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 115 (1894) et Kat. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, vol. 28, p. 678 (1938); Sack, Cordyl., p. 41 (1937). — Europe cent.

20. *A. mensuratum* Becker, Berlin. entom. Zs., Vol. 39, p. 119 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 680 (1934); Sack, Cordyl., p. 41 (1937). — Europe cent.

21. *A. minutum* Becker, Berlin. entom. Zs., Vol. 39, p. 116 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Sack, Cordyl., p. 41 (1937). — Europe cent. et orient.

22. *A. nigrifrontatum* Becker, Berlin. entom. Zs., Vol. 39, p. 120 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 680 (1934); Sack, Cordyl. p. 42 (1937). — Tyrol mérid.

23. *A. nigripes* (Zetterstedt), Dipt., Scand., Vol. 5, p. 2026 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 117 (1894) et Katal. Pal. Dipt., Vol, 4, p. 7 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 677 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 164 (1936); Sack, Cordyl., p. 42 (1937). — Suède.

24. *A. nigriventre* (Loew), Wien. entom. Monatschr., Vol. 8, p. 19 (1864) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 116 (1894) et Kat. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 300 (1906); Séguy, Faune de France, Vol. 28, p. 681 (1934); Sack, Cordyl., p. 42 (1937). — Allemagne.

25. *A. nudum* Malloch, Bull. Brooklyn Ent. Soc., Vol. 17, p. 78 (1922). — Amérique sept.

26. *A. nutans* Becker, Berlin. entom. Zs., Vol. 39, p. 120 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Sack, Cordyl., p. 43 (1937). — Carinthie.

27. *A. pallidipes* Malloch, Bull. Brooklyn Ent. Soc., Vol. 17, p. 77 (1922). — Amérique sept.

28. *A. puberulum* Becker, Berlin. entom. Zs., Vol. 39, p. 114 (1894); Wingate, Durham Dipt., p. 299 (1906); Séguy, Faune de France, Vol. 28, p. 678 (1934); Sack, Cordyl., p. 43 (1937). — Bohème.

29. *A. tibiellum* (Zetterstedt), Ins. Lapp., p. 731 (1839) [*Cordylura*] et Dipt. Scand , Vol. 5, p. 2068 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 121 (1894) et Katal. Pal. Dipt., Vol. 4, p. 7 (1905); Meade, Entom. mon. Mag , p. 218 (1899); Wingate, Durham Dipt., p. 301 (1906); Séguy, Faune de France, Vol. 28, p. 681 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 178 (1936); Sack, Cordyl., p. 43 (1937). — Europe cent. et sept.

30. *A. unispinosum* Malloch, Ohio Jl. Science, Vol. 20, p. 285 (1920). — Alaska.

23. Genus GONARCTICUS Becker

Gonarcticus Becker, Berlin. entom. Zs., Vol. 39, p. 103 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 291 (1906); Stackelberg, Mouches de l'URSS, p. 490 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 32 (1937).

Caractères. — Cinq ou six paires de soies orbitales, doublées d'une deuxième rangée au-dessus des antennes. Face longue et droite, légèrement oblique. Deux vibrissales. Palpes courts. Antennes comme chez les *Gonatherus;* chète antennaire coudé, épais, nu, le deuxième article légèrement plus long chez les mâles. — Cinq dorsocentrales (2+3); deux humérales, deux posthumérales, une présuturale, deux intra-humérales, deux intra-alaires, trois ou quatre supraalaires, trois propleurales, quatre scutellaires marginales. Trois sternopleurales. Ptéropleure cilié. Tibias postérieurs avec trois paires de soies externes. Ailes : première nervure (R_1) finement ciliée à l'apex. (**fig. 18**).

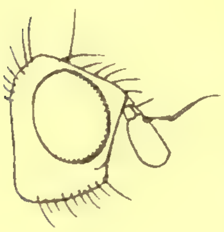


Fig. 18.

Gonarcticus antennatus (Zetterstedt), profil de la tête du mâle × 8.

Long. 3-5 mm.

Type du genre. — *Scatomyza antennata* Zetterstedt.

Répartition géographique. — Europe boréale.

LISTE DES ESPÈCES

1. *G. abdominalis* (Zetterstedt), Dipt. Scand., Vol. 5, p. 1080 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 104 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 291 (1906); Sack, Cordyl., p. 32 (1937). — Suède, Laponie.

2. *G. antennatus* (Zetterstedt), Ins. Lappon., p. 724 (1839) et Dipt. Scand., Vol. 5, p. 1981 (1846) [*Scatomyza*]; Becker, Berlin. entom. Zs., Vol. 39, p. 103 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Wingate, Durham Dipt., p. 291 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 33 (1937). — Europe boréale, Laponie.
   validicornis Zetterstedt, Dipt. Scand., Vol. 5, p. 2065 (1846) [*Cordylura*].

24. Genus MESAMYIA Malloch

Mesamyia Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 437 (1931); Curran, North Amer. Dipt., p. 391 (1934).

Caractères. — Espace interoculaire élargi; deux soies orbitales supérieures; quatre ou cinq soies orbitales inférieures. Joues subégales à la largeur du troisième article antennaire. Palpes courts, armés d'une soie apicale. Antennes étendues au-dessous du milieu de la hauteur de la face; troisième article subarrondi à l'apex antérieur; chète pubescent. — Thorax : cinq soies dorsocentrales (2+3); scutellum avec deux longues soies marginales et deux cils apicaux; propleure dénudé au centre; deux soies propleurales et une soie stigmatique bien développées; quatre soies mésopleurales fortes; trois sternopleurales, la postérieure plus longue. Ptéropleure cilié. Fémur antérieur dénudé sur la face antéro-interne. Ailes : première nervure non ciliée à l'apex; sixième nervure prolongée à la marge, au moins comme trace (Malloch).

Long. 5-6 mm.

Type du genre. — *Mesamyia testacea* Malloch.

Répartition géographique :

1. *M. testacea* Malloch, Ann. Mag. Nat. Hist., (10), vol. 8, p. 437 (1931). — Colorado.

25. Genus SPATHEPHILUS Becker

Spathephilus Becker, Berlin. entom. Zs., Vol. 39, p. 121 (1894); Stackelberg, Mouches de l'URSS, p. 492 (1933); Séguy, Faune de France, Vol. 28, p. 648 (1934); Sack, Cordyl., p. 43 (1937).

Caractères. — Tête subquadrangulaire; yeux arrondis; espace interoculaire peu saillant, six paires de soies orbitales irrégulières, face longue et droite, peu enfoncée. Une vibrisse. Palpes allongés, dilatés en spatule à l'extrémité. Antennes prolongées jusqu'à l'épistome; troisième article arrondi

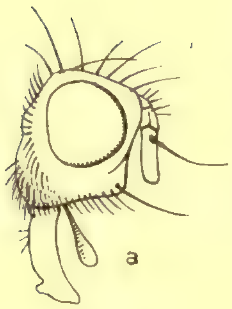


Fig. 19a.

Spathephilus breviventris Loew, profil de la tête du mâle × 12.

à l'extrémité; chète nu. — Thorax : cinq soies dorsocentrales (2+3); deux soies humérales, deux posthumérales, deux supraalaires, une préscutellaire; deux scutellaires fortes; deux soies propleurales, une ou deux mésopleurales, trois sternopleurales. Ptéropleure cilié. Pattes sétuleuses; tibias postérieurs avec trois paires de soies externes. Ailes petites et courtes; première longitudinale non ciliée. — Abdomen très court (fig. 19a).

Type du genre. — *Cordylura breviventris* Loew.

Répartition géographique :

1. *S. breviventris* (Loew), Europ. Dipt., Vol. 3, p. 250 (1873) [*Cordylura*]; Becker, Berlin. ent. Zs., Vol. 39, p. 122 (1894); Sack, Cordyl., p. 44 (1937). — Sarephta.

26. GENUS PSELAPHEPHILA BECKER

Pselaphephila Becker, Berlin. entom. Zs., Vol. 39, p. 122 (1894) et Katal. Pal. Dipt., Vol. 4, p. 8 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 293 (1906); Malloch, [Rep. Canad. Arct. Exped., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 492 (1933); Curran, North Amer. Dipt., p. 390 (1934); Séguy, Faune de France, Vol. 28, p. 681 (1934); Sack, Cordyl., p. 44 (1937).

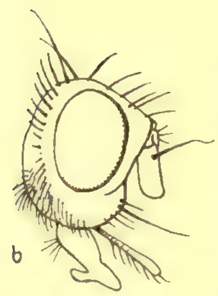


Fig. 19b.

Pselaphephila Loewi Becker, profil de la tête du mâle 12.

Caractères. — Tête quadrangulaire; front non saillant, cinq ou six soies orbitales; face longue, un peu enfoncée, grande vibrisse forte, vibrissales petites, faibles; soie péristomale postérieure médiocre. Palpes grêles, allongés, élargis. Antennes : troisième article anguleux apicalement, n'atteignant pas l'épistome. Chète antennaire épaissi à la base, dénudé, deuxième article légèrement épaissi, allongé. — Thorax : cinq dorsocentrales (2+3); deux humérales, deux posthumérales, une présuturale, une intrahumérale, deux intraalaires, trois supraalaires, quatre scutellaires : deux subapicales et deux apicales ciliformes; un chétule stigmatique, une propleurale, deux mésopleurales, deux ou trois soies sternopleurales. Ptéropleure cilié. Tibias postérieurs avec trois paires de soies externes (fig 19b).

Type du genre. — *Pselaphephila Loewi* Becker.

Répartition géographique. — Europe centrale, Amérique septentrionale, Groënland.

LISTE DES ESPÈCES

1. *P. arctica* Becker *ap.* Nielsen, Medd. Groënl. Kobenhavn, Vol. 29, p. 412 (1909). — Groënland occid.
2. *P. argyriceps* Curran, Canad. entom., Vol. 59, p. 254 (1927). — Ontario : Ottawa.
3. *P. Loewi* Becker, Berlin. entom. Zs., Vol. 39, p. 121 (1894); Wingate, Durham Dipt., p. 293 (1906); Séguy, Faune de France, Vol. 28, p. 681 (1934); Sack, Cordyl., p. 44 (1937). — Silésie.
4. *P. similis* Coquillett, Proc. U. S. Nat. Mus., Vol. 25, p. 124 (1903); Aldrich, Cat. N. Amer. Dipt., p. 567 (1905). — Massachusetts.

27. Genus ORTHOCHÆTA Becker

Orthochæta Becker, Berlin. entom. Zs., Vol. 39, p. 101 (1894) [*Orthochæta*] et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 291 (1906); Malloch, Report Canad. Arct. Exped., p. 75 (1919); Johnson, Psyche, Vol. 34, p. 101 (1927); Stackelberg, Mouches de l'URSS, p. 490 (1933); Curran, North Amer. Dipt., p. 390 (1934); Séguy, Faune de France, Vol. 28, p. 671 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 31 (1937).



Fig. 20.

Orthochæta pilosa (Zetterstedt), profil du mâle × 12.

Caractères. — Tête quadrangulaire; occiput fortement gonflé à la partie inférieure; péristome subégal à la largeur de l'antenne. Trompe mince et longue; palpes grêles dépourvus de soie apicale. Antennes aussi longues que la face, le troisième article deux ou trois fois plus long que le deuxième; chète antennaire pubescent, non coudé. — Thorax: soies acrosticales piliformes; deux supraalaires, la postérieure très longue; quatre scutellaires subégales; trois sternopleurales. Ptéropleure cilié. Tibias postérieurs avec trois paires de soies externes et un macrochète interne. Aile : première nervure longitudinale sétuleuse apicalement. — Abdomen à macrochètes marginaux grêles (**fig. 20**).

Long. 4-6 mm.

Type du genre. — *Cordylura pilosa* Zetterstedt.

Répartition géographique. — Europe et Amérique boréales.

LISTE DES ESPÈCES

1. *O. amœna* Cresson, Ent. News, Vol. 29, p. 133 (1918).	Pensylvanie.
2. *O. brunneipennis* Johnson, Psyche, Vol. 34, p. 102 (1927).	Etats-Unis d'Amérique.
3. *O. dissimilis* Malloch, Psyche, Vol. 31, p. 194 (1924).	Illinois.
4. *O. fuscipennis* Hendel, Ark. Zool., Vol. 21 A, n° 18, p. 8 (1930).	Kamtchatka : Klutchi.
5. *O. hirtipes* Johnson, Psyche, Vol. 34, p. 103 (1927).	Etats-Unis d'Amérique.
6. *O. pilosa* Zetterstedt, Ins. Lapp., p. 732 (1839) et Dipt. Scand., Vol. 5, p. 2064 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 12 (1864) [*Cleigastra*]; Becker, Berlin. entom. Zs., Vol. 39, p. 101 (1894) et Katal. Pal. Dipt., Vol. 4, p. 5 (1905); Pandellé, Revue Entom., p. 306 (1901) [*Cnemopogon*]; Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 291 (1906); Séguy, Faune de France, Vol. 28, p. 671 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 31 (1937).	Europe cent. et sept., Arkhangel, Laponie, Alaska.
7. *O. strigipes* Johnson, Psyche, Vol. 34, p. 102 (1927).	Etats-Unis d'Amérique.

28. Genus CNEMOPOGON Rondani

Cnemopogon Rondani, Prodromus, Vol. 1, p. 99 (1856) et Vol. 7, p. 3 (1866); Pandellé, Revue Entom., p. 304 (1901); Becker, Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Wingate, Durham Dipt., p. 291 (1906); Stackelberg, Mouches de l'URSS, p. 490 (1933); Séguy, Faune de France, Vol. 28, p. 671 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 162 (1936); Sack, Cordyl., p. 30 (1937).

Caractères. — Tête trapézienne; face oblique. Yeux atteignant presque le niveau de l'épistome en bas. Occiput légèrement gonflé à la partie inférieure, aplati à la partie supérieure. Trompe mince et longue; palpes grêles, munis de soies courtes. — Soies acrosticales ciliformes; deux soies supra-alaires : la postérieure très longue. Ptéropleure cilié; scutellum avec deux soies marginales robustes et deux cils apicaux; trois soies sternopleurales. Fémurs épais, longuement et densément ciliés; tarses courts; griffes et pelotes médiocres. Ailes : première nervure longitudinale (*R1*) sétuleuse apicalement. — Abdomen hérissé de macrochètes robustes (**fig. 21**).

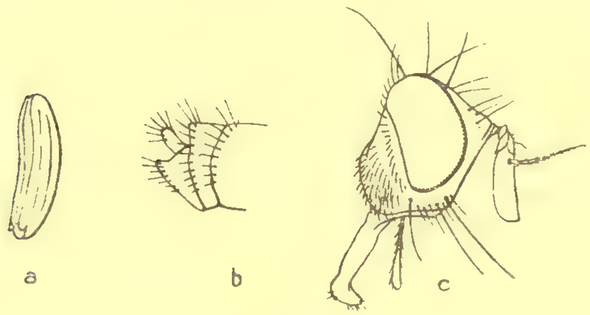


Fig. 21.

Cnemopogon apicalis (Wiedeman), femelle; — *a.* œuf; — *b.* oviscapte; — *c.* tête × 20.

Long. 4-7 mm.

Type du genre. — *Cordylura apicalis* Wiedemann.

Biologie. — Larves commensales, probablement saprophages. Imagos phytophiles ou anthophiles.

Répartition géographique :

1. *C. apicalis* (Wiedemann) *ap.* Meigen, System. Beschr., Vol. 5, p. 236 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 384 (1835) [*Cleigastra*]; Boie, Kröyer Naturh. Tidskr., Vol. 2, p. 240 (1838) [*Cordylura*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2023 (1846) [*Cordylura*]; Schiner, F.A., Vol. 2, 10 (1864) [*Cleigastra*]; Rondani, Prodr., Vol. 7, Scatophag., p. 3 (1866); Kaltenbach, Pflanzenfeinde, p. 348 (1872) [*Cordylura*]; Gercke, Verh. d. Ver. naturw. Unterh. Hamburg, Vol. 6, p. 6 (1880) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 100 (1894) et Katal. Pal. Dipt., Vol. 4, p. 4 (1905); Meade, Entom. mon. Mag., p. 174 (1899); Pandellé, Revue Entom., p. 306 (1901); Wingate, Durham Dipt., p. 291 (1906); Séguy, Faune de France, Vol. 28, p. 671 (1934); Ringdahl, Ent. Tidskr., Vol. 57, p. 163 (1936); Sack, Cordyl., p. 30 (1937). — Europe cent. et sept., Arkhangel.

Kertészi Szilady, Ann. Hist. Nat. Mus. hung., Vol. 36, p. 180 (1947) [*Gonarcticus*].

Larve dans la galle formée par les *Lipara tomentosa* Macq. et *lucens* Meigen sur l'*Arundo phragmites* L. Elle a aussi été observée dans la tige de la cime de l'Achillée (Kaltenbach), et dans la tige du *Rumex aquaticus* L. (Gercke, Verh. des Vereins naturw. Hamburg, Vol. 5, 1882, p. 68 et sq.). Boie aurait également obtenu ce Diptère de la chenille d'un « *Noctua phragmitidis* ».

SUBFAM. DELININÆ

Clidogasterinæ auct.

Caractères. — Petites espèces à corps allongé, brillant ou mat et couvert d'une pruinosité grise plus ou moins épaisse. Tête ronde et face courte. Une ou plusieurs soies vibrissales. Palpes petits, légèrement spatulés ou renflés à l'apex, sans soie apicale et dépourvus de villosité saillante. Antennes petites, arrondies à l'apex, n'atteignant pas l'épistome; chète nu ou pubescent. — Quatre ou cinq soies dorsocentrales (1-2+3), et une, deux ou trois sternopleurales. Ordinairement une soie propleurale plus ou moins développée; si cette soie propleurale est faible, les dorsocentrales présuturales sont ciliformes ou nulles, ou le mésonotum subquadrangulaire est couvert d'une villosité épaisse. Deux ou quatre scutellaires. Pattes robustes; fémurs épaissis. Ailes plutôt courtes. Abdomen cylindrique chez les mâles, légèrement courbé postérieurement.

Long. 3-8 mm.

Les imagos sont phytophiles ou anthophiles. Les larves connues sont phytophages.

TABLEAU DES GENRES

1 (2). *Deux soies sternopleurales* . . . . 3. DELINA Rob.-Desv.
2 (1). *Une soie sternopleurale.*
3 (4). *Tête plus longue que haute. Chète antennaire nu* (**fig. 22**) . . . 1. COCHLIARIUM Becker.
4 (3). *Tête plus haute que longue. Chète antennaire pubescent ou pratiquement nu* (**fig. 23**) . . . . 2. GYMNOMERA Rondani.

1. GENUS COCHLIARIUM BECKER

Cochliarium Becker, Berlin. entom. Zs., Vol. 39, p. 183 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Stackelberg, Mouches de l'URSS, p. 498 (1933); Séguy, Faune de France, Vol. 28, p. 684 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 161 (1936); Sack, Cordyl., p. 97 (1937).

Rhopochilus Enderlein, Tierwelt Mitteleuropas, Vol. 6, III, 2, p. 136 (1936).

Caractères. — Cinq soies orbitales. Péristome avec de nombreuses soies. Antennes : chète pratiquement nu. — Une seule paire de soies dorsocentrales : la préscutellaire. Scutellum avec deux ou quatre soies; soies humérales nulles ou très faibles; deux soies posthumérales; trois soies supraalaires; présuturale et intraalaires nulles; une soie mésopleurale, une soie sternopleurale et une soie propleurale faible ou ciliforme. Fémurs et tibias à pilosité faible. Ailes courtes et larges; nervures épaisses. — Abdomen dénudé. Hypopyge peu saillant, à forceps allongés, dilatés et aplatis, rabattus sur la face sternale comme chez les *Gymnomera* (**fig. 22**).

Long. 3-5 mm.

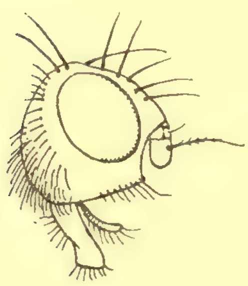


Fig. 22.

Cochliarium lasiostoma Becker, profil de la tête de la femelle × 15.

Types des genres. — *Cochliarium*, type : *Cordylura cuneiventris* Zetterstedt. — *Rhopochilus*, type : *Cochliarium lasiostoma* Becker.

Répartition géographique. — Régions montagneuses de l'Europe centrale et boréale.

Classification. — G. Enderlein (VI : 136) propose une nouvelle coupe générique aux dépens des *Cochliarium*; les caractères préconisés ont tout au plus une valeur sous-générique qui peut s'exprimer comme il suit :

TABLEAU DES SOUS-GENRES

— *Scutellum avec quatre soies marginales. Péristome avec une vibrisse et une ou trois vibrissales.* . . . . Cochliarium s. s.

— *Scutellum avec deux soies marginales. Péristome avec quatre ou cinq soies* . . . . Rhopochilus Enderlein.

Subgenus COCHLIARIUM s. s.

LISTE DES ESPÈCES

1. C. (*C.*) *albipilum* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2021 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 185 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Wingate, Durham Dipt., p. 308 (1906); Séguy, Faune de France, Vol. 28, p 684 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 98 (1937). — Suède.
2. C. (*C.*) *castanipes* Becker, Berlin. entom. Zs., Vol. 39, p. 185 (1894) et Katal. Pal. Dipt , Vol. 4, p. 20 (1905); Wingate, Durham, Dipt., p. 308 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 684 (1934); Sack, Cordyl., p. 98 (1937). — Alpes suisses.
3. C. (*C.*) *cuneiventre* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2020 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., p. 184 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Wingate, Durham Dipt., p. 308 (1906); Séguy, Faune de France, Vol. 28, p. 684 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Sack, Cordyl., p. 98 (1937). — Suède.

Subgenus RHOPOCHILUS Enderlein

4. C. (*R.*) *lasiostoma* Becker, Berlin. entom. Zs., Vol. 39, p. 184 (1894); Wingate, Durham Diptera, p. 308 (1906); Séguy, Faune de France, Vol. 28, p. 685 (1934); Sack, Cordyl., p. 98 (1937). — Alpes suisses.

2. Genus GYMNOMERA Rondani

Gymnomera Rondani, Prodr., Vol. 7, Scatophag., p. 21 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 182 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Wingate, Durham Dipt., p. 293 (1906) ; Malloch, Rep. Canad. Arct. Exped., p. 76 (1919); Hendel, Konowia, Vol. 9, p. 79 (1930); Stackelberg, Mouches de l'URSS, p. 498 (1933); Curran, North Amer. Dipt., p. 389 (1934); Séguy, Faune de France, Vol. 28, p. 672 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Sack, Cordyl., p. 99 (1937).

Gymnomera (auct.), Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 36 (1920).

Paragymnomera Hendel, Konowia, Vol. 9, p. 80 (1930).

Caractères. — Yeux arrondis. Occiput gonflé. Une seule vibrisse. Quatre soies orbitales faibles. Chète antennaire pratiquement nu ou pubescent. — Deux ou trois soies dorsocentrales : une ou plusieurs antérieures subciliformes, mais toujours distinctes de la pilosité du fond; une paire préscutellaire; deux rangées d'acrosticales; une humérale (chez le *Gymnomera tarsea* les calus huméraux sont hérissés de nombreux microchètes noirs); deux posthumérales; une présuturale; quatre supraalaires; les soies intrahumérales et intraalaires manquent; quatre scutellaires subégales, les deux apicales fortes, croisées. Une propleurale, une ou deux mésopleurales et une sternopleurale. Ptéropleure nu ou velu. Pattes normales à soies faibles. Ailes normales, transverse apicale placée dans la partie moyenne de l'aile; première nervure longitudinale (*R1*) nue ou ciliée à l'apex. — Abdomen (♂) raccourci. Hypopyge peu saillant; forceps à branches dilatées, appliquées contre la face sternale comme chez les *Cochliarium*. Oviscapte triangulaire, comprimé latéralement (**fig. 23**).

Long. 3-6 mm.



Fig. 23

Gymnomera tarsea (Fallén), profil du corps du mâle × 12.

Types des genres. — *Gymnomera*, type : *Cordylura tarsea* Fallén. — *Paragymnomera*, type : *Cordylura dorsata* Zetterstedt.

Répartition géographique. — Europe centrale (Tyrol), septentrionale et boréale. Sibérie. ? Chili.

Biologie. — Les imagos sont herbicoles. La larve d'une espèce attaque les fleurs d'une Pédiculaire.

Classification. — Deux sous-genres sont reconnus par Hendel (1930, p. 79) à l'intérieur du genre *Gymnomera*. Le sous-genre *Paragymnomera* (type *dorsata*) est caractérisé par la première nervure longitudinale (R1) nue à l'apex et par la première anale (1A) prolongée à la marge.

Le sous-genre *Gymnomera* (type *tarsea*) présente une première nervure longitudinale ciliée et la première anale courte.

Le ptéropleure cilié, caractère important dans d'autres groupes de Muscides, paraît être ici un caractère lacunaire. Il s'observe chez le *Gymnomera hirta* Hendel comme chez certaines espèces d'*Allomyella*. M. Malloch (1931, p. 186) croit qu'il y a une certaine correspondance entre les deux formes.

LISTE DES ESPÈCES

1. *G. atrifrons* Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 37 (1920). — Etats-Unis d'Amérique, Minnesota.
2. *G. dorsata* (Zetterstedt,) Ins. Lapp., p. 735 (1839) et Dipt. Scand. Vol. 5, p. 2079 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 182, pl. 9 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Meade, Entom. mon. Mag., p. 177 (1899); Wingate, Durham Dipt., p. 308 (1906); Bezzi, Mem. Soc. ital. Sc. nat., — Suède, Norvège, Laponie, Russie arctique, Tyrol, Suisse.

Milan, Vol. 9, p. 57 (1918); Hendel, Konowia, Vol. 9, p. 79 (1930) [*Paragymnomera*]; Séguy, Faune de France, Vol. 28, p. 673 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169, (1936); Sack, Cordyl., p. 99 (1937).

pectoralis Zetterstedt, Ins. Lappon., p. 734 (1838) [*Cordylura*].

3. *G. fasciventris* Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 38 (1920). — Etats-Unis d'Amérique, Illinois.

4. *G. hirta* Hendel, Konowia, Vol. 9, p. 79 (1930); Rydén, Ent. Tidskr., Vol. 54, p. 49 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936). — Suède.

La larve mine les fleurs du *Pedicularis sceptrum-carolinum* Miq. (*gloriosa* Bis. et M.).

5. *G. incisurata* Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 37 (1920). — Etats-Unis d'Amérique, Illinois.

6. *G. mellina* Becker, Acta Soc. scient. Fennicæ, Vol. 26, p. 57 (1900) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Sack, Cordyl., p. 100 (1937). — Sibérie.

7.? *G. Pinocheti* Brèthes, Rev. Chil. Hist. nat., Vol. 28, p. 107 (1924). — Chili.

8. *G. tarsea* (Fallén), Dipt. Suec. Scatomyz., p. 8 (1819) [*Cordylura*]; Meigen, Syst. Beschr., Vol. 5, p. 242 (1826) [*Cordylura*]; Zetterstedt, Ins. Lappon., p. 735 (1839) et Dipt. Scand. Vol. 5, p. 2078 (1846) [*Cordylura*]; Rondani, Prodr., Vol. 7, Scatophag., p. 21 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 183 (1894) et Katal. Pal. Dipt., Vol. 4, p. 20 (1905); Meade, Entom. mon. Mag., p. 177 (1899); Wingate, Durham Dipt., p. 308 (1906); Séguy, Faune de France, Vol. 28, p. 672, fig. (1934); Ringdahl, Entom. Tidskr., Vol. 57, p, 169 (1936); Sack, Cordyl., p. 100 (1937). — Europe cent. et sept., Russie arctique, Laponie.

3. Genus DELINA Robineau-Desvoidy

Delina Robineau-Desvoidy (*nec* Blanchard 1852 [*Hemipt.*]), Myodaires, p. 669 (1830); Hendel, Ark. Zool., Vol. 21 A, nº 18, p. 9 (1930).

Cleigaster Macquart, Mém. Soc. Sc. Lille, p. 340 (1842).

Cleigastra Macquart, S. à Buff., Vol. 2, p. 384 (1835); Townsend, Canad. Entom., Vol. 23, p. 155 (1891); Curran, North Amer. Dipt., p. 390 (1934).

Clidogaster (Macquart), Pandellé, Rev. Entom., p. 303, 307 (1901).

Clidogastra (Macquart), *emend.* Agassiz, 1846, Nomencl. Zool.; Becker, Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 293, 307 (1906); Hendel, Konowia, Vol. 4, p. 301 (1925); Stackelberg, Mouches de l'URSS, p. 498 (1933); Séguy, Faune de France, Vol. 28, p. 682 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Sack, Cordyl., p. 10 et 94 (1937).

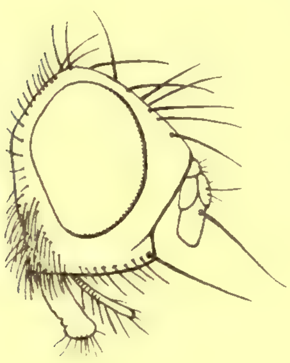


Fig. 24.

Delina nigrita (Fallén), profil de la tête du mâle × 20.

Caractères. — Six ou sept soies orbitales : deux supérieures, quatre ou cinq inférieures. Une vibrisse et une soie accessoire. Antennes : troisième

article étendu jusqu'au milieu de la hauteur de la face, chète pubescent. — Thorax court, à macrochètes robustes; cinq soies dorsocentrales (2+3); deux soies scutellaires submarginales, deux chétules apicaux; quatre supraalaires; deux intraalaires; une présuturale; deux ou trois mésopleurales; deux sternopleurales. Pattes à soies fortes; tibias III avec deux paires de soies externes. — Tergites abdominaux à soies marginales. Corps luisant ou couvert d'une pruinosité plus ou moins épaisse (**fig. 24**)

Long. 3,5 -8 mm.

Types des genres. — *Delina*, type : *D. Dejeani* Rob.-Desv. — *Cleigaster, Cleigastra, Clidogastra*, type : *Cordylura nigrita* Fallén.

Biologie. — Imagos phytophiles ou anthophiles.

Les larves sont probablement mineuses des feuilles des végétaux. Une espèce de Bavière (*veratri*) a été observée sur les feuilles d'une Liliacée. Une larve de *Clidogaster* indéterminée spécifiquement a été signalée par Vimmer (1931) sur les *Polygonatum officinale* All. et *latifolium* Desf.

LISTE DES ESPÈCES

1. *D. anthrax* (Schiner), F.-A., Vol. 2, p. 12 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 181 (1894) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 308 (1906); Séguy, Faune de France, Vol. 28, p. 682 (1934); Sack, Cordyl., p. 95 (1937) [*Clidogastra*].	Alpes cent.
2. *D. bicolor* (Macquart), S. à Buff., Vol. 2, p. 387 (1835) [*Clidogastra*]; Meigen, Syst. Beschr., Vol. 7, p. 342 (1838) [*Cordylura*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Séguy, Faune de France, Vol. 28, p. 682 (1934) [*Clidogastra*].	France.
3. *D. carbonaria* (Pokorny), Verh. z.-b. Ges. Wien, Vol. 37, p. 411 (1887); Becker, Berlin. entom. Zs., Vol. 39, p. 180 (1894) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 308 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Milan, Vol. IX, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 682 (1934); Sack, Cordyl., p. 95 (1937) [*Clidogastra*].	Alpes.
4. *D. Dejeani* Robineau-Desvoidy, Myodaires, p. 670 (1830); Becker, Katal. Pal. Dipt., Vol. 4, p. 19 (1905).	France.
5. *D. erythrocephala* (Meigen), System. Beschr., Vol. 7, p. 340,39 (1838) [*Cordylura*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 19 (1905) [*Clidogastra*].	Allemagne.
6. *D. flaviceps* (Vimmer), Ent. Listy, Vol. 1, p. 29 (1938).	Tchécoslovaquie.
7. *D. nigriceps* (Becker). Berlin. entom. Zs., Vol. 39, p. 181 (1894) et Acta Soc. scient. Fenn., Vol. 26, p. 56 (1900) et Kat. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 307 (1906); Séguy, Faune de France, Vol. 28, p. 682 (1934); Sack, Cordyl., p. 96 (1937) [*Clidogastra*].	Suisse, Sibérie.
8. *D. nigrita* (Fallén), Dipt. Suec. Scatomyz., p. 10 (1819) (*Cordylura*]; Meigen, Syst. Beschr., Vol. 5, p. 240 (1826) [*Cordylura*]; Macquart, S., à Buff., Vol. 2, p. 384 (1835) [*Cleigastra*]; Zetterstedt, Ins. Lapp., p. 728 (1839) et Dipt. Scand., Vol. 5, p. 2031,30 (1846) [*Cordylura*]; Rondani, Prodr., Vol. 7, Scatoph., p. 20 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 180 (1849) et Acta Soc. scient. Fenn., Vol. 26, p. 57 (1900) et Kat. Pal. Dipt., Vol. 4, p. 19 (1905); Meade, Ent. mon. Mag., p. 176 (1899); Pandellé, Rev. Entom., p. 308 (1901);	Europe cent. et sept., Alpes, Sibérie.

Wingate, Durham Dipt., p. 307 (1906); Bezzi, Mem. Soc. ital. Sc. Nat., Milan, Vol. 9, fasc. 1, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 682 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Hering, Blattminen., p. 346 et 384 (1936); Sack, Cordyl., p. 96 (1937) [*Clidogastra*].

La larve mine les feuilles de certaines Orchidées (*Plathantera*, *Orchis*).

9. *D. nitida* (van der Wulp), Tijdschr. Entom., (2), Vol. 6, p. 186 (1871); Becker, Katal. Pal. Dipt., Vol. 4, p. 20 (1905) [*Clidogastra*]. — Hollande.

10. ? *D. subnigripes* (Karsch), Berlin. entom. Zs., Vol. 31, p. 380 (1887) [*Clidogastra*]. — Afrique orient.

11. *D. tibialis* Robineau-Desvoidy, Myodaires, p. 669 (1830); Becker, Katal. Pal. Dipt., Vol. 4, p. 20 (1905). — France.

12. *D. veratri* (Hendel), Konowia, Vol. 4, p. 301 (1925); Séguy, Faune de France, Vol. 28, p. 684 (1934); Sack, Cordyl., p. 97 (1937) [*Clidogastra*]. — Europe cent.

La larve mine les feuilles du *Veratrum album* Linné.

SUBFAM. HYDROMYZINÆ

Caractères. — Péristome élargi, soies péristomales distinctes, au moins une vibrisse et une soie accessoire; parfois des cils allongés réunis en touffe formant une « barbe » pendante (*Pogonota*). Trompe comprimée ou cylindrique, longue; labelles toujours épais, fortement dentés. Palpes plus ou moins élargis, spatulés ou foliacés. Antennes médiocres (sauf *Acerocnema*), le troisième article avec une petite fossette sensorielle ou un chétule peu apparent près du chète antennaire; chète nu, velu ou plumeux. — Soies propleurales présentes ou non, parfois une pilosité propleurale; soies scapulaires bien développées; soies acrosticales piliformes; cinq ou six dorsocentrales (2-3+3); deux humérales; deux posthumérales; deux intraalaires; deux postalaires, l'antérieure plus courte; au moins quatre scutellaires fortes; une ou deux sternopleurales. Pattes robustes à soies fortes ou couvertes d'une pilosité fine, assez longue; fémurs grêles ou fortement renflés (*Bostrichopyga*, *Staegeria*), armés de dents ou d'épines (*Cosmetopus*, *Pogonota*).

Ailes normales sauf deux cas :

I° la quatrième nervure (*M2 a+b*), courbée sur la troisième, rétrécit la cellule *2M1* au bord de l'aile (*Lasioscelus*) (**fig. 33**).

II° le bord antérieur de l'aile est fortement courbé, l'épaississement costal dépasse largement la pointe de l'aile et la section apicale de la quatrième nervure (*M2a+b*) est sinueuse (*Cosmetopus*) (**fig. 31**).

Exceptionnellement des taches sombres sur la membrane [*Ernoneura*] (**fig. 38**). Première nervure (*R1*) dénudée à la face supérieure.

Mâle. — Appareil copulateur bien développé, quelquefois saillant, — ou les segments génitaux couverts de longues soies (*Okeniella*, *Pogonota*), — ou présentant les forceps dilatés en lames aplaties étendues sur la face sternale (*Lasioscelus*).

Femelle. — Cerques rarement transformés en lames coupantes.

Diptères zoophages comme les Cordylurines, exceptionnellement saprophages ou coprophages.

Larves. — Coprophages ou saprophages, — ou phytophages et mineuses de feuilles.

TABLEAU DES GENRES

1 (2). *Deux soies sternopleurales. Palpes dilatés. Antennes n'atteignant pas l'épistome; chète antennaire épaissi sur le quart basal* (fig. 28) 5. TRICHOPALPUS Rondani.

2 (1). *Une soie sternopleurale.*

3 (4). *Ptéropleure cilié.*

— *Tibias I avec de nombreux sétules noirs sur la face interne. Ailes non tachées* . . . . 1. ALLOMYELLA Malloch.

— *Tibias I sans sétules noirs sur la face interne. Ailes avec plusieurs taches brunes* (fig. 38) . . . . 17. ERNONEURA Becker.

4 (3). *Ptéropleure nu.*

5 (6). *Soies orbitales très courtes; espace interoculaire pratiquement nu* (fig. 39) . . . . 18. HYDROMYZA Fallén.

6 (5). *Soies orbitales longues; espace interoculaire à chétotaxie normale.*

7 (8). *Tibias I avec de nombreux sétules noirs plantés sur la face interne, ou avec une épine apicale interne* (fig. 37) . . . . 16. ACANTHOCNEMA Becker.

8 (7). *Tibias I sans sétules internes ou sans épine apicale interne saillante.*

9 (10). *Fémurs I avec des apophyses, épineuses ou non, dressées sur la face interne. Ailes : 4e longitudinale sinueuse* (fig. 31) . . . . 8. COSMETOPUS Becker.

10 (9). *Non et non.*

11 (16). *Soies propleurales toujours présentes; habituellement une soie stigmatique. Palpes dilatés à l'apex.*

12 (13). *Antennes très épaisses, prolongées jusqu'au péristome* (fig. 29) . 6. ACEROCNEMA Becker.

13 (12). *Non.*

14 (15). *Péristome plus large que la moitié de la hauteur de l'œil. Face légèrement oblique et plus courte que le front. Ailes : nervures 3 et 4 courbées postérieurement. Cinq soies dorsocentrales* (fig. 32). 9. STAEGERIA Rondani.

15 (14). *Péristome habituellement moins large que le tiers de la hauteur de l'œil. Face aussi longue que le front ou presque.*

— *Fémurs I et III épaissis et courbés; tibias I courbés chez le mâle. Trompe nue* (fig. 34) . . . . 11. BOSTRICHOPYGA Becker.

— *Fémurs II et III épaissis, non courbés. Tibias I rectilignes. Trompe : théca avec un pinceau de poils* . . . . . . 4. OPSIOMYIA Coquillett.

16 (11). *Pas de soies propleurales ou stigmatiques. Palpes dilatés à l'apex ou non.*

17 (18). *Antennes : 3e article arrondi apicalement.*

— *Ailes : 3e et 4e longitudinales parallèles* (fig. 26) . . 2. MICROPROSOPA Becker.

— *Ailes : 3e et 4e longitudinales convergentes à l'apex* (fig. 33) . . . . 10. LASIOSCELUS Becker.

18 (17). *Antennes : 3e article anguleux à l'apex antérieur.*

19 (20). *Soies acrosticales piliformes disposées en plus de 2 ou 4 rangées.* . 3. SPATHIOPHORA Rondani.

20 (19). *Soies acrosticales disposées en 2 ou 4 rangées seulement.*

21 (22). *Tibias I sans sétules internes.*

— *Palpes cochléariformes, rétrécis basalement* . . . . . 14. PSEUDOPOGONOTA Malloch.

— *Palpes non distinctement dilatés* (fig. 28) . . . . . 5. TRICHOPALPUS Rondani.

22 (21). *Tibias I : face interne avec des sétules noirs.*

23 (24). *Ailes émarginées* (**fig. 30**, ♂) . . . . 7. PLEUROCHÆTA Becker.
24 (23). *Ailes non émarginées.*
25 (26). *Ailes : des transverses supplémentaires entre les 3e et 4e nervures longitudinales* (**fig. 36**) . . . . 15. POGONOTA Zetterstedt.
26 (25). *Non.*
— *Ailes : bord costal longuement cilié près de R1.* (**fig. 35**) 12. OKENIELLA Hendel.
— *Ailes : bord costal normal* . . . . 13. OKENINA Malloch.

1. GENUS ALLOMYELLA MALLOCH

Allomyella Malloch, N. Amer. Fauna, Vol. 46, p. 199 (1923); Curran, Canad. Ent., Vol. 59, p. 260 (1927) et North Amer. Dipt., p. 387 (1937).

Allomyia Malloch, *nec* Banks, 1916 (*Trichopt.*), *nec* Felt, 1918 (*Dipt.*), Rep. Canad. Arct. Exped., p. 77 c,80 c (1913).

Caractères. — Soies orbitales plutôt faibles. Joues subégales au quart de la hauteur de l'œil. Antennes grandes : troisième article deux fois plus long que le deuxième, subanguleux à l'apex antérieur; chète nu, épaissi sur le tiers basal. Cinq soies dorsocentrales; ptéropleure cilié au centre; quatre scutellaires, quelques courts cils discaux; sternopleure cilié, une longue sternopleurale. Pattes : tibias antérieurs avec de courtes épines internes, plus une soie antéro-externe et une ou deux postérieures; tibias intermédiaires avec une soie antéro-externe, une postéro-externe et une postérieure; tibias postérieurs avec deux soies antéro-internes préapicales, deux antéro-externes et une postéro-externe. — Mâle : abdomen subcylindrique, étroit; plaque prégénitale à branches latérales bifides (**fig. 25**).

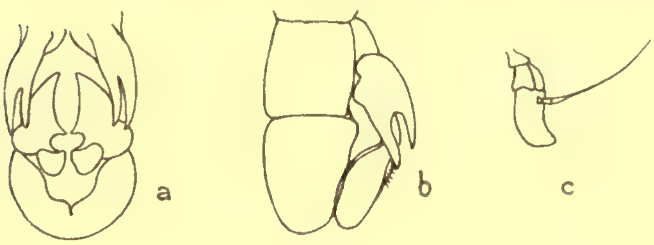


Fig. 25.

Allomyella unguiculata (Malloch), mâle; — *a.* segments apicaux de l'abdomen vus de face; — *b.* id., profil; — *c.* antenne (selon J. R. Malloch).

Long. 3,5-4 mm.

Type du genre. — *Allomyia unguiculata* Malloch.

Répartition géographique. — Amérique boréale et arctique

Classification. — Correspond peut-être au *Gymnomera hirta* Hendel, qui présente également un ptéropleure cilié et qui habite l'Europe arctique.

LISTE DES ESPÈCES

1. *A. borealis* Curran, Canad. Ent., Vol. 59, p. 260 (1927). Alaska.
2. *A. brevipennis* Malloch, N. Amer. Fauna, Vol. 46, p. 199 (1923). Iles Pribilof.
3. *A. robusta* Curran, Canad. Ent., Vol. 59, p. 260 (1927). Alberta.
4. *A. unguiculata* (Malloch), Rep. Canad. Arct. Exp., p. 80 c (1919) [*Allomyia*]. Canada arctique.

2. Genus MICROPROSOPA Becker

Microprosopa Becker, Berlin. entom. Zs., Vol. 39, p. 147 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Aldrich, Cat. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 296 (1906); Malloch, Report Canad. Arct. Exped., p. 77 (1919) et Psyche, Vol. 31, p. 193 (1924); Curran, Canad. Entom., Vol. 59, p. 256 (1927) et North Amer. Dipt., p. 389 (1934); Stackelberg, Mouches de l'URSS, p. 495 (1933); Séguy, Faune de France, Vol. 28, p. 685 (1834); Ringdahl, Entom. Tidskr., Vol. 57, p. 161 et 167 (1936); Sack, Cordyl., p. 90 (1937).

Paramicroprosopa Ringdahl, Tidskr. Entom., Vol. 57, p. 169 (1936).

Caractères. — Tête quadrangulaire, face courte; péristome à soies rares, une vibrisse et plusieurs soies satellites. Palpes élargis en lancette. Antennes courtes : troisième article tout au plus deux fois plus long que large, arrondi à l'apex; chète pratiquement nu. — Thorax : soies scapulaires réduites; deux humérales; deux posthumérales; une présuturale; cinq dorsocentrales (2+3); soies acrosticales piliformes disposées en deux rangées; quatre scutellaires; une ou deux intraalaires; une préalaire courte, chétiforme; quatre supraalaires; deux postalaires; une ou trois mésopleurales; une sternopleurale. Fémurs antérieurs épais, les autres robustes, à pilosité faible. Ailes normales. — Abdomen court; oviscapte robuste, triangulaire; lamelle sternale aplatie, bord supérieur saillant. Hypopyge mâle : forceps externe à branches robustes, repliées et collées sur la face sternale, parfois cachées par le sternite prégénital (**fig. 26**).

Long. 3-6 mm.

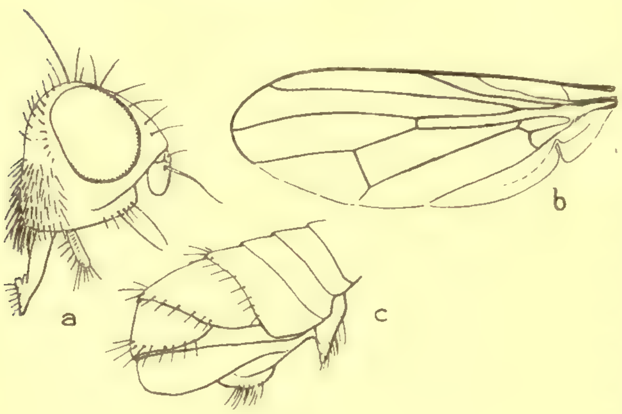


Fig. 26.

Microprosopa hæmorrhoidalis (Meigen), mâle; — *a*. profil de la tête; — *b*. aile; — *c*. profil de l'extrémité de l'abdomen.

Types des genres. — *Microprosopa : Cordylura hæmorrhoidalis* Meigen. — *Paramicroprosopa* : *P. subarctica* Ringdahl.

Répartition géographique. — Zones boréales de la région holarctique.

Classification. — Dans ce genre M. O. Ringdahl distingue deux sous-genres en utilisant le caractère suivant :

— *Tibias antérieurs avec de courtes soies sur la face interne* . . . Microprosopa s. s.

— *Tibias antérieurs avec des soies longues et fines plantées en série sur la face interne*. . . . . Paramicroprosopa Ringdahl.

LISTE DES ESPÈCES

Subgenus MICROPROSOPA s. s.

1. *M.* (*M.*) *albipennis* (Zetterstedt), Ins. Lappon., p. 729 (1839) et Dipt. Scand., Vol. 5, p. 2017 (1846) (*Cordylura*); Becker, Berlin. entom. Zs., Vol. 39, p. 151 (1894) et Acta Soc. scient. — Europe sept., Sibérie.

Fennicæ, Vol. 26, p. 53 (1900) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Wingate, Durham Dipt., p. 303 (1906); Séguy, Faune de France, Vol. 28, p. 686 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl , p. 91 (1937).
niveipalpis Zetterstedt, Dipt. Scand., Vol. 5, p. 2044 (1846) [*Cordylura*].

2. *M.* (*M.*) *arctica* Malloch, Ohio Jl. Sciences, Vol. 20, p. 285 (1920). — Alaska.

3. *M.* (*M.*) *crinipes* Ringdahl, Entom. Tidskr., Vol. 49, p. 21 (1928) et Vol. 57, p. 168 (1936). — Scandinavie, Laponie.

4. *M.* (*M.*) *dissimilis* Malloch, Ohio Jl. Sciences, Vol. 20, p. 286 (1920). — Alaska.

5. *M.* (*M.*) *diversipes* Curran, Canad. entom., Vol. 59, p. 256 (1927). — Canada, Banff : Alberta.

6. *M.* (*M.*) *flavinervis* Malloch, Psyche, Vol. 31, p. 193 (1924). — Massachusetts.

7. *M.* (*M.*) *frigida* Holmgreen, Entom. Tidskr., Vol. 4, p. 176 (1880); Becker, Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Sack, Cordyl., p. 91 (1937). — Nouvelle-Zemble, Détroit de Matotshkin.

8. *M.* (*M.*) *fulvipes* (Zetterstedt), Ins. Lappon., p. 732 (1839) et Dipt. Scand., Vol. 5, p. 2052 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 152 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Wingate, Durham Dipt., p. 303 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 92 (1937). — Suède.

9. *M.* (*M.*) *hæmorrhoidalis* (Meigen), System. Beschr., Vol. 5, p. 237 (1826) (*Cordylura*); Zetterstedt, Ins. Lapp., p. 731 (1839) et Dipt. Scand., Vol. 5, p. 2047 (1846) (*Cordylura*); Becker, Berlin. entom. Zs., Vol. 39, p. 149 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 53 (1900) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Lundbeck, Dipt. Groenl., Vol. 2, p. 290 (1900); Pandellé, Revue Entom., p. 310 (1901) [*Trichopalpus*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905); Séguy, Faune de France, Vol. 28, p. 685 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 92 (1937). — Europe cent., et sept., Sibérie, Groënland, Etats-Unis, New Hampshire.
lividipes Zetterstedt, Dipt. Scand., Vol. 5, p. 2042 (1846) [*Cordylura*].
pallipes Zetterstedt, Ins. Lapp., p. 732 (1838) et Dipt. Scand., Vol. 5, p. 2049 (1846) [*Cordylura*].

10. *M.* (*M.*) *heteromyzina* (Zetterstedt), Ins. Lapp., p. 723 (1839) et Dipt. Scand., Vol. 5, p. 1978 (1846) [*Scatomyza*]; Becker, Berlin. entom. Zs., Vol. 39, p. 152 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Wingate, Durham Dipt., p. 302 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 92 (1937). — Laponie.

11. *M.* (*M.*) *lacteipennis* Ringdahl, Entom. Tidskr., Vol. 41, p. 38 (1920) et Vol. 57, p. 168 (1936). — Suède, Laponie.

12. *M.* (*M.*) *lineata* (Zetterstedt), Ins. Lapp., p. 732 (1839) et Dipt, Scand., Vol. 5, p. 2051 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 152 (1894) et Katal. Pal. Dipt., Vol. 5, p. 19 (1905); Wingate, Durham Dipt., p. 303 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 39 (1937). — Laponie.

13. *M.* (*M.*) *lucida* Becker, Acta Soc. scient. Fennicæ, Vol. 26, p. 53 (1900) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 et 169 (1936); Sack, Cordyl., p. 93 (1937). — Sibérie.

14. *M.* (*M.*) *obscurella* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2043 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 153 (1894) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 303 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 93 (1937). — Suède, Laponie.

15. *M.* (*M.*) *pallicauda* (Zetterstedt), Ins. Lapp., p. 733 (1839) et Dipt. Scand., Vol. 5, p. 2035 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 150 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 53 (1900) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Wingate, Durham Dipt., p. 303 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 168 (1936); Sack, Cordyl., p. 93 (1937). — Europe cent. et boréale, Sibérie.

16. *M.* (*M.*) *triseta* Malloch, Ohio Jl. Sciences, Vol. 20, p. 286 (1920). — Alaska.

17. *M.* (*M.*) *varicornis* Curran, Canad. Entom., Vol. 59, p. 257 (1927). — Colombie britannique, Okanagan.

18. *M.* (*M.*) *varitibia* Becker, Mém. Acad. Sc. St. Pétersb., p. 400 (5), 4 (1897) et Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Ringdahl, Ent. Tidskr., Vol. 52, p. 174 (1931); Sack, Cordyl., p. 94 (1937). — Nouvelle-Zemble.

Subgenus PARAMICROPROSOPA Ringdahl

19. *M.* (*P.*) *frontata* (Zetterstedt), Ins. Lapp., p. 724 (1839) et Dipt. Scand., Vol. 5, p. 1979 (1846) [*Scatomyza*]; Becker, Berlin. entom. Zs., Vol. 36, p. 153 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Wingate, Durham Dipt., p. 302 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936) [*Paramicroprosopa*]; Sack, Cordyl , p. 91 (1937). — Suède, Laponie.

    strigifrons Zetterstedt, Ins. Lapp., p. 728 (1839) et Dipt. Scand., Vol. 5, p. 2028 (1846) [*Cordylura*]; Becker, Katal. Pal. Dipt., Vol. p. 19 (1905); Sack, Cordyl., p. 94 (1937); *teste* Ringdahl, Vol. 57, p. 169 (1936).

20. *M.* (*P.*) *subarctica* Ringdahl, Entom. Tidskr., Vol. 57, p. 177 (1936). — Laponie.

3. Genus SPATHIOPHORA Rondani

Spathiophora Rondani (*emend.*) Prodr., Vol. 2, p. 13 (1857); Becker, Berlin. entom. Zs., Vol. 39, p. 158 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Pandellé, Revue Entom., p. 311 (1901); Aldrich, Catal. N. Amer. Dipt., p. 568 (1905); Wingate, Durham Dipt., p. 296 (1906); Malloch Rep. Canad. Arct. Exped., p. 77 (1919); Stackelberg, Mouches de l'URSS, p. 495 (1933); Séguy, Faune de France, Vol. 28, p. 686 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 88 (1937).

Spaziphora Rondani, Prodr., Vol. 1, p. 99 (1856) et Vol. 7, Scatophag., p. 7 (1866); Curran, North Amer. Dipt., p. 389 (1934).

Caractères. — Tête subquadrangulaire; yeux ovalaires; espace interoculaire légèrement saillant; huit-dix soies orbitales en deux rangées irrégulières, les orbitales inférieures proclinées. Joues aussi larges que le troisième article antennaire; péristome égal à la moitié de la hauteur de l'œil, trois vibrisses et quelques vibrissales, quelques cils péristomaux et deux ou trois soies péristomales. Trompe médiocre; palpes élargis, spatulés, munis de quelques soies marginales. Antennes étendues sur un peu plus de la

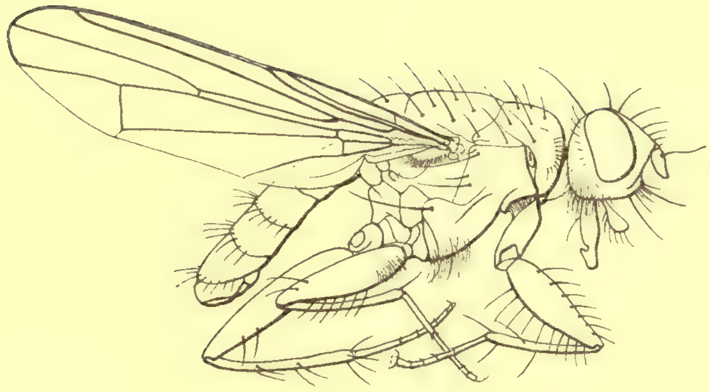


Fig. 27.

Spathiophora hydromyzina (Fallén), profil du mâle × 12.

moitié de la hauteur de la face, troisième article subtronqué à l'apex; chète nu, légèrement épaissi à la base. — Thorax : cinq dorsocentrales; soies acrosticales plus développées chez les mâles, disposées en plusieurs rangs; deux humérales; deux posthumérales; une présuturale; deux intraalaires; trois supraalaires; quatre soies scutellaires; deux ou trois mésopleurales; une soie sternopleurale. Pattes fortes; fémurs gonflés dans leur partie moyenne, à pilosité fine et soies rares; tibias postérieurs avec deux soies externes. Ailes étroites et longues, membrane fortement ciliée, transverse apicale placée dans la partie moyenne de l'aile; cellule discoïdale élargie en avant, troisième et quatrième longitudinales divergentes à l'apex (**fig. 27**).

Long. 4,5-7 mm.

Type du genre. — *Cordylura hydromyzina* Fallén.

Biologie. — Les larves sont aquatiques, subaquatiques ou amphibies. Elles sont zoophages et dévorent de petites larves de Diptères (Psychodides, Tendipédides) ou des Oligochètes. Les imagos sont également zoophages; ils capturent de petits moucherons qu'ils dévorent (Lloyd).

Répartition géographique. — Europe centrale et septentrionale. Amérique du nord.

LISTE DES ESPÈCES

1. *S. cincta* (Loew), Dipt. Amer. sept. ind., Cent. III, p. 47 (1863); Aldrich, Cat. N. Amer. Dipt., p. 565 (1905) [*Cordylura*]. — Amérique sept.
   var. *littoralis* Curran, Canad. Entom., Vol. 59, p. 256 (1927). — Ontario, Ottawa, Britannia.
2. *S. fascipes* Becker, Berlin. entom. Zs., Vol. 39, p. 160 (1894) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Wingate, Durham Dipt., p. 303 (1906); Séguy, Faune de France, Vol. 28, p. 687, nota (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 89 (1937). — Europe cent. et sept.
   hydromyzina var. *b*, Zetterstedt, Dipt. Scand., Vol. 5, p 2037 (1846) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 385 (1835) [*Cleigastra*]; *teste* Becker, l. c., Katal., p. 18 et Ringdahl, l. c., p. 167.
3. *S. hydromyzina* (Fallén), Dipt. Suec. Scatomyz., p. 7 (1819) [*Cordylura*]; Meigen, Syst. Beschr., Vol. 5, p. 242 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 385,6 (1835) [*Cleigastra*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2037, var. a (1846) [*Cordylura*]; Rondani, Prodr., Vol. 7, Scatophag., p. 2 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 160 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 51 (1900) et Katal. Pal. Dipt., Vol. 4, p. 18 (1905); Meade, Entom. mon. Mag., p. 223 (1899) [*Scatophaga*]; Pandellé, Revue Entom., p. 312 (1901); Win- — Europe cent. et sept., Sibérie.

gate, Durham Dipt., p. 303 (1906); Séguy, Faune de France, Vol. 28, p. 686 (1934); Ringdahl, Entom. Tidskr. Vol. 57, p. 167 (1936); Sack, Cordyl., p. 90 (1937); Lloyd, Graham et Reynoldson, Ann. Appl. Biol., Vol. 27, p. 136 (1940).

albitarsis Zetterstedt, Ins. Lapp., p. 728 (1839) et Dipt. Scand., Vol. 5, p. 2017 (1846) [*Cordylura*]; *teste* Becker, l. c., Katal. p. 18; *teste* Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936).

Falleni Schiner, F.-A., Vol. 2, p. 14 (1864) [*Hydromyza*].

4. Genus OPSIOMYIA Coquillett

Opsiomyia Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 162 (1898); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Malloch, Rep. Canad. Arct. Exped., p. 77 (1919) et Ann. Mag. Nat. Hist., (10), Vol. 8, p. 433 (1931); Curran, North Amer. Dipt., p. 389 (1934).

Caractères. — Face à peu près aussi longue que le front. Trompe : théca avec un fascicule de longs cils jaunes. Palpes plus ou moins élargis à l'apex, sans soie apicale. — Deux rangées de soies acrosticales. Fémurs intermédiaires et postérieurs épaissis chez le mâle; tibias intermédiaires avec une soie submédiane antéro-interne présente dans les deux sexes. Ailes : nervure anale étendue à la marge, première nervure (*R1*) nue.

Long. 4-6 mm.

Type du genre. — *Opsiomyia palpalis* Coquillett.

Répartition géographique. — Amérique septentrionale et boréale.

1. *O. palpalis* Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 162 (1898); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 433 (1931). — Amérique sept., Alaska, Alberta, Manitoba.

nigribasis Curran, Canad. Entom., Vol. 59, p. 255 (1927) [*Trichopalpus*], *teste* Malloch, l. c.

5. Genus TRICHOPALPUS Rondani

Trichopalpus Rondani (*emend.*), Prodr., Vol. 1, p. 100 (1856) et Vol. 7, Scatophag., p. 22 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 157 (1905); Malloch, Rep. Canad. Arct. Exp., p. 76 et 77 (1919) et Ann. Mag. Nat. Hist., (10), Vol. 8, p. 433 (1931); Stackelberg, Mouches de l'URSS, p. 495 (1933); Séguy, Faune de France, Vol. 28, p. 675 (1934); Curran, North Amer. Dipt., p. 389 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 87 (1937).

Tricopalpus Rondani, l. c., Becker, Katal., p. 17.

Chætosa Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 163 (1898); Aldrich, Catal. N. Amer. Dipt., p. 566 (1905); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919) et Ann. Mag. N. H. (10), Vol. 8, p. 433 (1931); Stackelberg, Mouches de l'URSS, p. 495 (1933); Curran, North Amer. Dipt., p. 390 (1934); Ringdahl, Ent. Tidskr., Vol. 57, p. 167 (1936).

Cleigastra auct. *p. p.* (*nec* Macquart).

Clidogaster Pandellé *p. p.*

Caractères. — Tête anguleuse en avant, espace interoculaire bombé, quatre soies orbitales proclinées. Yeux ovalaires; péristome quatre fois plus large que les joues. Soies péristomales fortes et dressées en rangées plus ou moins régulières et continues. Trompe courte, épaisse, noire et luisante; palpes comprimés et foliacés. Antennes courtes, n'atteignant pas l'épistome, troisième article anguleux antérieurement ou faiblement mucroné; chète nu, épaissi sur le quart basal. — Soies scapulaires robustes; soies acrosticales piliformes, disposées en deux rangs; cinq soies dorsocentrales (2+3). Macrochètes scutellaires apicaux presque aussi développés que les intermédiaires. Une soie propleurale et une stigmatique subégales. Ptéropleure nu. Trois ou quatre mésopleurales, une ou deux sternopleurales. Fémurs antérieurs et postérieurs avec une rangée de petites soies externes. Tibias postérieurs avec deux soies externes. Ailes longues, troisième et quatrième nervures parallèles à l'apex. — Abdomen : tergites à soies marginales faibles. Appareil copulateur peu saillant (**fig. 28**).

Long. 4-5 mm.

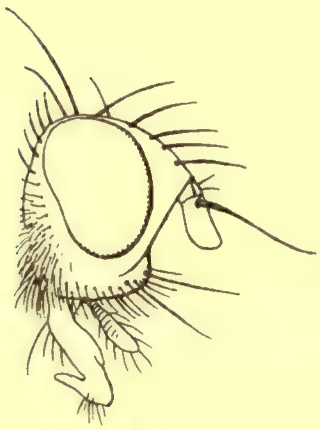


Fig. 28.
Trichopalpus fraternus (Meigen), profil de la tête du mâle × 20.

Types des genres. — *Trichopalpus*, type : *Cordylura fraterna* Meigen. — *Chætosa*, type : *Cordylura punctipes* Meigen.

Biologie. — Les larves du *Trichopalpus punctipes* sont nuisibles à certaines Graminées. Les imagos sont herbicoles.

Répartition géographique. — Europe, Sibérie. Amérique septentrionale.

Classification. — La présence d'une ou deux soies sternopleurales a fait diviser les représentants de ce genre en deux sections. Mais il a été reconnu que ce caractère est inconstant : le sternopleure pouvant présenter une soie d'un côté et deux de l'autre, et la sternopleurale antérieure étant encore de développement variable. On peut cependant considérer les espèces à deux sternopleurales comme appartenant à un sous-genre particulier.

TABLEAU DES SOUS-GENRES

— *Une soie sternopleurale*. . . . . Trichopalpus s. s.
— *Deux soies sternopleurales* . . . . Chætosa Coquillett.

LISTE DES ESPÈCES

Subgenus TRICHOPALPUS s. s.

Caractères. — Mâle. Sept ou huit soies orbitales (3+4.5). Verticales externes très courtes. Deux ou trois vibrisses robustes; cils vibrissaux chétiformes. Joues subégales à la moitié de la largeur du troisième article antennaire; trois ou quatre péristomales robustes. Palpes avec deux ou trois cils décolorés apicaux. Antennes : troisième article anguleux à l'apex antérieur. — Sternopleure cilié, une sternopleurale; quatre mésopleurales inégales.

Type du sous-genre. — *Cordylura fraterna* Meigen.

1. *T.* (*T.*) *fraternus* (Meigen), System. Beschr., Vol. 5, p. 243 (1826) Europe.
[*Cordylura*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2038 (1846)

[*Cordylura*]; Schiner, F. A., Vol 2, p. 14 (1864) [*Hydromyza*]; Rondani, Prodr., Vol. 7, Scat., p. 22 (1866); Becker, Berl. entom. Zs., vol. 39, p. 157 (1894) et Katal. Pal. Dipt., Vol. 4, p. 17 (1905); Meade, Entom. mon. Mag., p. 176 (1899); Pandellé, Revue Entom., p. 311 (1901); Wingate, Durham Dipt., p. 303 (1906); Séguy, Faune de France, Vol. 28, p. 675 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 88 (1937).

SUBGENUS CHÆTOSA COQUILLETT

Caractères. — Mâle. Six soies orbitales (2+4). Verticales externes faibles. Deux vibrisses robustes; trois cils vibrissaux. Joues linéaires. Péristome aussi large que le troisième article antennaire; trois ou quatre péristomales. Palpes avec un cil apical. Antennes : troisième article faiblement mucroné. — Sternopleure cilié; deux sternopleurales, l'antérieure faible; macrochètes scutellaires subégaux; quatre mésopleurales inégales.

Type du sous-genre. — *Cordylura punctipes* Meigen.

2. *T.* (*C.*) *Churchilli* Malloch, Ann. Mag. N.H., (10), Vol. 8, p. 434 (1931). — Manitoba.

3. *T.* (*C.*) *pilirostris* Ringdahl, Ent. Tidskr., Vol. 57, p. 178 (1936). — Suède.

4. *T.* (*C.*) *punctipes* (Meigen), System. Beschr., Vol. 5, p. 239 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 386 [1835] [*Cleigastra*]; Zetterstedt, Ins. Lappon., p. 731 (1839) et Dipt. Scand., Vol. 5, p. 2046 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, p. 10 (1854) [*Cleigastra*]; Rondani, Prodromus, Vol. 7, Scatophag., p. 23 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 158 (1894); Coquillett, Journ. N. Y. Ent. Soc., Vol. 6, p. 163 (1898); Meade, Ent. mon. Mag., p. 217 (1899) [*Cleigastra*]; Becker, Acta Soc. scient. Fenn., Vol. 26, p. 51 (1900) et Kat. Pal. Dipt., Vol. 4, p. 17 (1905); Pandellé, Rev. Entom., p. 307 (1901) [*Clidogaster*]; Aldrich, Catal. N. Amer. Dipt., p. 303 (1905); Wingate, Durham Dipt., p. 303 (1906); Lindroth, Zool. Bidr., Vol. 13, p. 304 (1934); Séguy, Faune de France, Vol. 28, p. 675 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 178 (1936); Balachowsky et Mesnil, Insectes nuisibles, p. 1053 (1935); Sack, Cordyl., p. 88 (1937). — Toute l'Europe, Sibérie, Amérique boréale.

flavipes Meigen (*nec* Fallén), System. Beschr., Vol. 5, p. 239 (1826) (*Cordylura*), *teste* Becker, Zs. Hymenopt. Dipt., Vol. 2, p. 214 (1902); Konopka, S. B. z.-b. Wien, Vol. 23,9 (1873); Lindeman, Bull. Soc. Nat. Moscou (n. s.), Vol. 1, p. 199 (1887).

La larve serait nuisible au *Phleum pratense* L. en Europe occidentale, au *Secale cereale* en Russie.

6. GENUS ACEROCNEMA BECKER

Acerocnema Becker, Berlin. entom. Zs., Vol. 39, p. 154,28 (1894) et Kat. Pal. Dipt., Vol. 4, p. 17 (1905); Wingate, Durham Dipt., p. 296 (1906); Stackelberg, Mouches de l'URSS, p. 495 (1933); Séguy, Faune de France, Vol. 28, p. 689 (1934); Sack, Cordyl., p. 86 (1937).

Caractères. — Tête trapézienne; yeux ronds; front rectiligne; joues étroites; péristome moins large que l'antenne. Sept ou huit soies orbitales fines; face longue, droite en profil, anguleuse en bas; une ou deux vibrisses. Trompe grêle, pointue; palpes plus longs que la partie chitineuse de la trompe, grêles à la base, très largement dilatés dans leur partie distale. Antennes épaisses et longues, leur extrémité séparée de l'épistome par un espace qui n'égale pas la longueur du deuxième article; troisième article une fois et demie plus long que large. Chète en alène mince, courtement pubescent (**fig. 29**). — Cinq dorsocentrales (2+3) fines; deux humérales, deux posthumérales, une présuturale et trois supra-alaires; une seule intraalaire : la première; quatre scutellaires. Une mésopleurale, une sternopleurale. — Abdomen : lames prégénitales épaisses chez le mâle. Chez la femelle l'abdomen est épaissi à l'apex; cerques en lames triangulaires, écourtés; plaque génitale robuste, terminée par une lame de serpe courte.

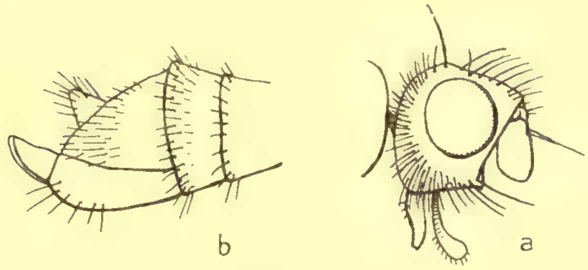


Fig. 29.

Acerocnema macrocera (Meigen), femelle; — *a*. profil de la tête; — *b*. profil de l'extrémité de l'abdomen.

Long. 3-5 mm.

Type du genre. — *Cordylura breviseta* Zetterstedt.

Répartition géographique. — Europe centrale et septentrionale.

LISTE DES ESPÈCES

1. *A. macrocera* (Meigen), Syst. Beschr., Vol. 5, p. 241 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 385 (1835) [*Cleigastra*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 17 (1905); Séguy, Faune de France, Vol. 28, p. 690 (1934); Sack, Cordyl., p. 84 (1937). — Europe cent. et sept.

   breviseta Zetterstedt, Dipt. Scand., Vol. 5, p. 2022 (1846) [*Cordylura*]; Mik, Verh. zool.-bot. Ges. Wien, Vol. 37, p. 186 (1887); Becker, Berlin. ent. Zs., Vol. 39, p. 154 (1894) et Zs. Hymenopt. Dipt., Vol. 2, p. 215 (1902).

   latipalpis Meigen, Syst. Beschr., Vol. 5, p. 241 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 385 (1835) [*Cleigastra*].

   magnicornis Zetterstedt, Dipt. Scand., Vol. 5, p. 2032 (1846) [*Cordylura*].

2. *A. Pokornyi* Becker, Berlin. ent. Zs., Vol. 39, p. 157 (1894) et Kat. Pal. Dipt., Vol. 4, p. 17 (1905); Wingate, Durham Dipt., p. 296 (1906); Sack, Cordyl., p. 87 (1937). — Europe cent. et sept.

   macrocera Schiner (*nec* Meigen), Fauna Austriaca, Vol. 2, p. 10 (1864) [*Cleigastra*].

3. *A. Tiefi* Becker, Berlin. ent. Zs., Vol. 39, p. 155 (1894) et Kat. Pal. Dipt., Vol. 4, p. 17 (1905); Wingate, Durham Dipt., p. 296 (1906); Sack, Cordyl., p. 86 et 87 (1937). — Europe cent. et sept.

   breviseta Mik (*nec* Zetterstedt), Verh. zool.-bot. Ges. Wien, p. 186 (1887) [*Clidogastra*].

   fulvipes Meigen, Syst. Beschr., Vol. 7, p. 341 (1838) [*Cordylura*]; Mik, Wien. ent. Ztg., Vol. 8, p. 233 (1889); Becker, Katal. Pal. Dipt., Vol. 4, p. 19 (1905); Sack, Cordyl., p. 96 (1937).

7. Genus PLEUROCHÆTA Becker

Pleurochæta Becker, Mém. Acad. imp. Sc. Petrograd, Vol. 28, n° 7, p. 63 (1915); Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 435 (1931); Curran, North Amer. Dipt., p. 389 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936).

Caractères. — Mâle. Tête aussi haute que longue. Antennes : troisième article anguleux à l'apex antérieur. — Thorax : deux rangées d'acrosticales. Soies propleurale et stigmatique nulles; ptéropleure dénudé. Fémurs antérieurs très épais, dépourvus de soies antéro-internes, mais avec une courte apophyse subapicale hérissée de soies molles; face postéro interne avec plusieurs séries de courts sétules plantés sur la partie moyenne; fémurs intermédiaires médiocrement épaissis. Ailes en faucille large à l'extrémité; troisième et quatrième nervures fortement courbées, bord compris entre l'apex des quatrième et cinquième nervures longuement cilié; nervure transverse apicale perpendiculaire à la cinquième nervure (**fig. 30**). — Abdomen : bords latéraux des troisième, quatrième et cinquième segments abdominaux hérissés de longues soies jaunes, plus longues et pendantes sur les troisième et quatrième segments. Hypopyge avec une apophyse semblable à celle des *Okeniella*.

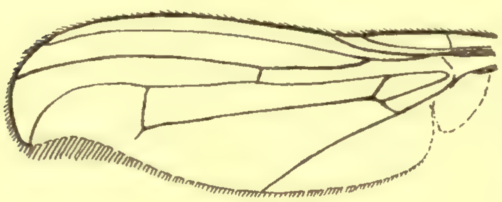


Fig. 30

Pleurochæta simplicipes Becker, aile du mâle (d'après Malloch).

Femelle. Palpes spatulés. Fémurs antérieurs robustes, dépourvus de chétules internes; tibias antérieurs avec de courts sétules internes comme chez le mâle. Ailes normales, quatrième nervure légèrement courbée en bas de l'apex.

Long. 5-6 mm.

Type du genre. — *Pleurochæta fulviseta* Becker.

Répartition géographique :

1. *P. simplicipes* Becker, Acta Soc. scient. Fennicæ, Vol. 26, p. 50 (1900) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905) [*Cosmetopus*]; Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 435 (1931); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 85 (1937) [*Cosmetopus*]. — Sibérie, Laponie, Canada arctique : île Herschel.
   fulviseta Becker, Mém. Acad. imp. Sc., Pétrograd, Vol. 28, p. 63 (1915); *teste* Malloch, l. c., *teste* Ringdahl, l. c.

8. Genus COSMETOPUS Becker

Cosmetopus Becker, Berlin. entom. Zs., Vol. 39, p. 146 (1894) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Stackelberg, Mouches de l'URSS, p. 495 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 84 (1937).

Caractères. — Espace interoculaire élargi, cinq soies orbitales. Péristome avec deux macrochètes dressés, un troisième planté sur la carène génale, à l'union du tiers moyen et du tiers basal. Barbe à soies éparses. Palpes allongés, chez le mâle parfois en rubans très longs (*C. dentimanus* Z.), ou filiformes et l'apex dilaté en cuiller (*C. Bergrothi* Beck.). Antennes courtes, troisième article arrondi à

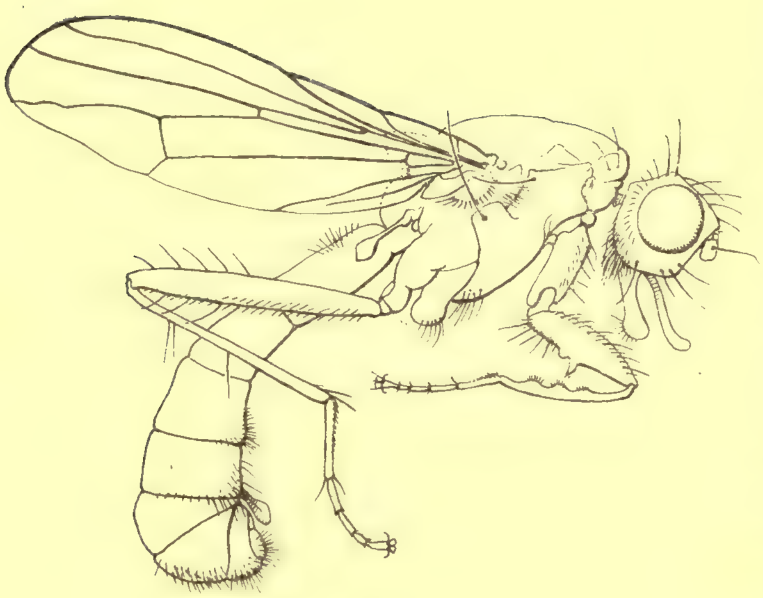


Fig. 31.

Cosmetopus dentimanus Zetterstedt, profil du mâle × 15 (reconstitué d'après Th. Becker).

l'extrémité; chète légèrement épaissi à la base, à pilosité courte. — Thorax normal, 4-5 paires de soies dorsocentrales dressées, soies acrosticales négligeables; deux humérales, deux posthumérales, trois supra-alaires, une présuturale, trois intra-alaires. Quatre scutellaires marginales. Une mésopleurale et une sternopleurale. Pattes à chétotaxie et villosité éparses. Fémurs antérieurs des mâles avec de fortes soies ou leurs parties moyenne et interne avec des apophyses dressées, épineuses ou non; tibias antérieurs avec des apophyses similaires (*C. dentimanus* Zett., fig. 31). Ailes à forme et nervation caractéristiques (fig. 31). — Abdomen aplati à la base, renflé en massue à l'apex; sternite IV avec une lamelle dressée, pendante.

Long. 5-6 mm.

Type du genre. — *Cordylura dentimana* Zetterstedt.

Répartition géographique — Parties boréales de la région holarctique et terres polaires arctiques.

LISTE DES ESPÈCES

1. *C. Bergrothi* Becker, Acta Soc. scient. Fennicæ, Vol. 26, p. 48 (1900) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Sack, Cordyl., p. 84 (1937).	Sibérie, Finlande.
2. *C. Bryanti* Malloch, Ann. Mag. Nat. Hist., (10), Vol. 10, p. 303 (1932).	Canada, N. W. T. Aklavik.
3. *C. dentimanus* (Zetterstedt), Ins. Lapp., p. 730 (1839) et Dipt. Scand., Vol. 5, p. 2033 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 147 (1894) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 85 (1937).	Suède, Laponie, Arkhangel.

9. Genus STAEGERIA Rondani

Staegeria Rondani, Prodr., Vol. 1, p. 99 (1856) et Vol. 7, Scatophag., p. 3 (1866); Becker, Berlin. entom. Zs., Vol. 39, p. 144 (1894); Stackelberg, Mouches de l'URSS, p. 494 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 83 (1937).

Caractères. — Tête trapézienne en profil, yeux courtement ovalaires, espace interoculaire bombé, cinq ou sept soies orbitales courtes, ocellaires réduites, verticales longues; joues égales à la largeur du troisième article antennaire; face légèrement enfoncée; péristome subégal à la largeur de l'œil, couvert sur sa partie postérieure comme sur l'occiput de petits chétules serrés; deux vibrisses faibles, soies vibrissales et péristomales marginales ciliformes. Trompe médiocre; palpes très élargis et spatulés à l'apex. Antennes courtes, l'extrémité tronquée est séparée de l'épistome par près de deux fois la largeur du troisième article; chète court, à pubescence très courte. — Thorax : cinq dorsocentrales peu visibles dans la pilosité du fond; une soie humérale, deux posthumérales, une présuturale, quatre ou cinq supraalaires, quatre scutellaires. Une soie dans l'angle supérieur du mésopleure, une sternopleurale; partie inférieure du sternopleure, près de la base du fémur intermédiaire, avec une longue pilosité peu serrée. Ailes courtes chez le mâle, plus longues chez la femelle, les troisième et quatrième nervures subparallèles à l'apex et courbées postérieurement, nervure transverse apicale (*M2c*) subrectiligne; sixième nervure longue, n'atteignant pas la marge de l'aile. — Abdomen très long, étroit, le segment basal allongé. Hypopyge peu saillant, dernier tergite muni d'une touffe de soies dressées; sternite prégénital avec deux lamelles saillantes (**fig. 32**).

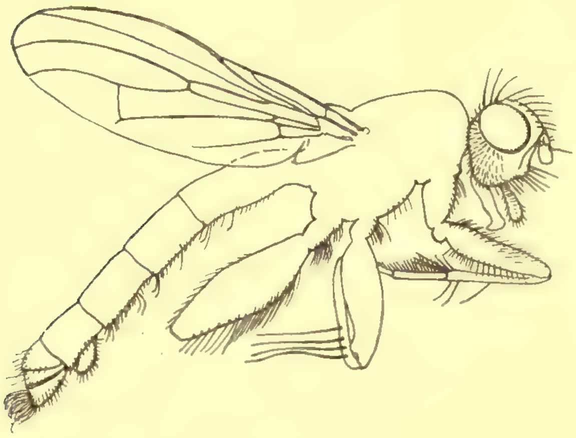


Fig. 32.

Staegeria Kuntzei Zetterstedt, profil schématique du mâle × 15 (reconstitué d'après Th. Becker).

Long. 7-8 mm.

Type du genre. — *Cordylura Kuntzei* Zetterstedt.

Répartition géographique :

1. *S. Kuntzei* (Zetterstedt), Iter Lapp., Vol. 1, p. 263 (1822) et Ins. Lappon., p. 728 (1839), et Iter Jemtland., p. 518 (1840) et Dipt. Scand., Vol. 5, p. 2016 (1846) [*Cordylura*]; Rondani, Prodr., Vol. 7, Scatophag., p. 3 (1866); Becker, Berlin. entom. Zs., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 167 (1936); Sack, Cordyl., p. 83 (1937). — Suède : Jemtland, Laponie.

10. Genus LASIOSCELUS Becker

Lasioscelus Becker, Berlin. entom. Zs., Vol. 39, p. 143 (1894) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Stackelberg, Mouches de l'URSS, p. 494 (1933); Curran, North Amer. Dipt., p. 389 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 81 (1937).

Caractères. — Tête ronde; yeux grands; face longue, rectiligne, anguleuse en bas. Six soies fronto-orbitales, six ou sept fortes vibrissales. Palpes épaissis en massue. Antennes longues, troisième article coupé obliquement à l'apex; chète antennaire légèrement épaissi à la base. Chétotaxie thoracique

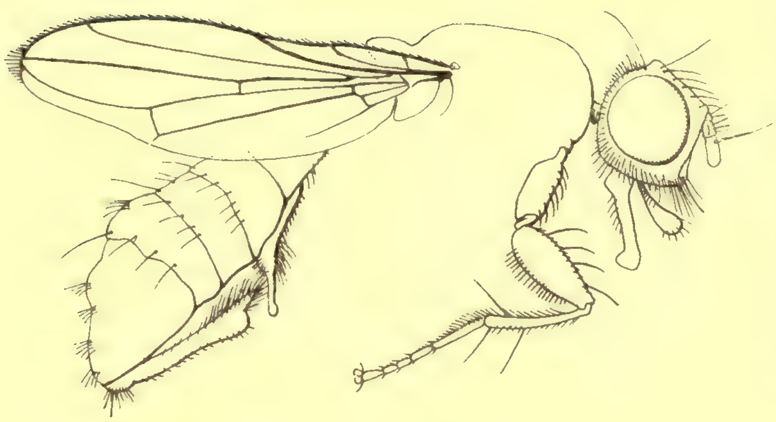


Fig. 33.

Lasioscelus clavatus Zetterstedt, profil schématique du mâle × 15 (reconstitué d'après Th. Becker).

semblable à celle des *Okeniella* et des *Pogonota*. Fémurs antérieurs des mâles épaissis à la base, simples chez les femelles. Ailes rétrécies à l'apex, la quatrième nervure (*M1*) courbée et dirigée sur la troisième (*R2+5*) à l'apex. Abdomen des mâles épaissi à l'apex, forceps très développés, recourbés sur la face sternale; sternite prégénital avec deux longues apophyses latérales. Femelles : ovipositeur comme chez les espèces du genre *Pogonota* (**fig. 33**).

Type du genre. — *Cordylura clavata* Zetterstedt.

Répartition géographique — Suède. Sibérie. Russie asiatique.

LISTE DES ESPÈCES

1. *L. clavatus* (Zetterstedt), Dipt. Scand., Vol. 5, p. 2041 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 144 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 51 (1900) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Malloch, Ann. Mag. Nat. Hist. (10), Vol. 7, p. 186 (1931); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 81 (1937). — Suède, Laponie, Sibérie.
   immunda Zetterstedt, Dipt. Scand., Vol. 5, p. 2071 (1846) [*Cordylura*].
2. *L. nigricans* (Loew), Europ. Dipt., Vol. 3, p. 251 (1873) [*Cordylura*]; Becker, Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Sack, Cordyl., p. 82 (1937). — Russie asiatique.
3. *L. Sahlbergi* Becker, Acta Soc. scient. Fennicæ, Vol. 26, p. 51 (1900) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 82 (1937). — Sibérie.

11. Genus BOSTRICHOPYGA Becker

Bostrichopyga Becker, Berlin. entom. Zs., Vol. 39, p. 142 (1894) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Stackelberg, Mouches de l'URSS, p. 494 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 80 (1937).

Caractères. — Tête ronde en profil, yeux pratiquement ronds; péristome subégal à la largeur du troisième article antennaire; joues plus étroites. Espace interoculaire bombé; trois ou quatre orbitales longues, en antéversion; verticales externes fortes; soies occipitales faibles. Face un peu concave, formant un angle émoussé avec la marge péristomale, deux grandes vibrisses. Occiput renflé. Trompe

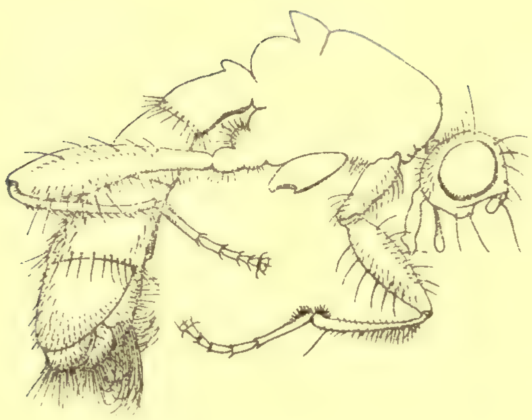


Fig. 34.

Bostrichopyga crassipes Zetterstedt, profil schématique du mâle × 10 (imité de Th. Becker).

grêle, palpes progressivement élargis en massue étroite. Antennes courtes, troisième article légèrement plus long que large; chète allongé, pratiquement nu. — Cinq dorsocentrales; une humérale, deux posthumérales, trois supraalaires, une présuturale; quatre scutellaires; une propleurale et une sternopleurale. Fémurs épaissis dans leur partie moyenne.

Mâles : fémurs antérieurs et postérieurs courbés; tibias antérieurs renflés et ciliés dans leur partie distale interne. Abdomen épaissi à l'extrémité, lamelle prégénitale avec un pinceau de longues soies courbées (*fig.* **34**).

Long. 4,5-6 mm.

Type du genre. — *Cordylura crassipes* Zetterstedt.

Répartition géographique. — Europe boréale

LISTE DES ESPÈCES

1. *B. borealis* Hendel, Verh. zool.-bot. Ges. Wien, Vol. 53, 7, p. 385 (1903); Becker, Katal. Pal. Dipt., Vol. 4, p. 16 (1905). — Norvège.
2. *B. crassipes* (Zetterstedt), Ins. Lapp., p. 734 (1839) [*Cordylura*] et Dipt. Scand., Vol. 5, p. 2077 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 143 (1894) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905); Wingate, Durham Dipt., p. 295 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 80 (1937). — Suède.

12. GENUS OKENIELLA HENDEL

Okeniella Hendel, Wien. entom. Ztg., Vol. 26, p. 98 (1907) et Vol. 29, p. 308 (1910); Stackelberg, Mouches de l'URSS, p. 494 (1933); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 79 (1937).

Okenia Zetterstedt (*nec* Leuckart, 1826, *Mollusca*), Ins. Lapp., p. 734 (1839) et Dipt. Scand., Vol. 5, p. 1994 (1846); Becker, Berlin. entom. Zs., Vol. 39, p. 141 (1894); Wingate, Durham Dipt., p. 295 (1906).

Caractères. — Tête subquadrangulaire, yeux grands; cinq soies orbitales; face longue, péristome une fois et demie plus large que le troisième article antennaire; angle vibrissal saillant, muni de quelques soies. Palpes légèrement dilatés à l'apex. Antennes presque aussi longues que la face, troisième article trois fois et demie ou quatre fois plus long que le second; chète épaissi à la base, pubescent. — Thorax avec cinq paires de soies dorsocentrales, deux humérales, deux posthumérales, une présuturale, trois ou quatre supraalaires, quatre scutellaires; prosternum cilié; une mésopleurale et une sternopleurale. Pattes antérieures : fémur courbé à la base, longuement cilié à partir du milieu, une apophyse

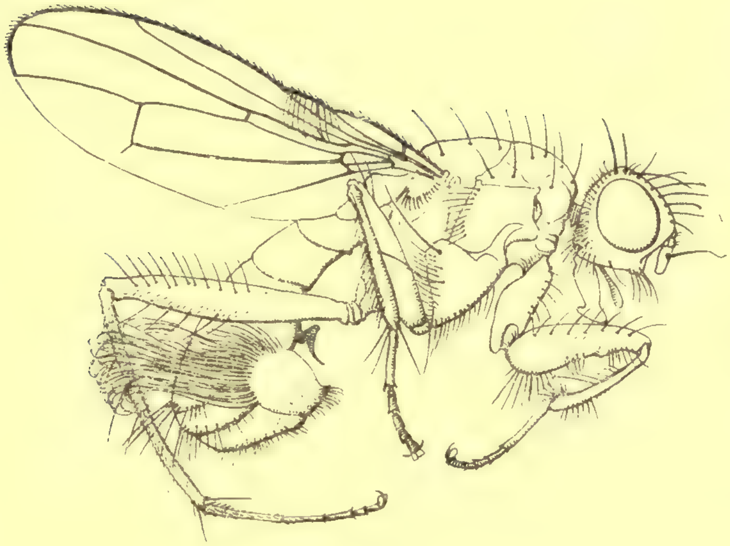


Fig. 35.

Okeniella caudata (Zetterstedt), profil du mâle × 20 (reconstitué d'après Th. Becker).

mousse sur la face interne, à l'union du tiers moyen et du tiers apical; tibia épaissi à l'extrémité, une soie interne médiane et quatre ou six soies externes plantées sur la moitié apicale de la face externe. Ailes élargies, bord apical arrondi; chez le mâle, le bord costal, entre l'apex de *sc* et de *R1*, porte de longs cils courbés. — Abdomen court, tergites basaux sans soies marginales, mais chez le mâle l'appendice latéral des forceps porte de longues soies dressées en haut (**fig. 35**).

Long. 4-6 mm.

Types des genres. — *Okeniella : Cordylura caudata* Zetterstedt. — *Okenia : C. caudata* Zetterstedt.

Répartition géographique. — Europe septentrionale. Sibérie. Amérique arctique.

LISTE DES ESPÈCES

1. *O. caudata* (Zetterstedt), Ins. Lapp., p. 734 (1839) et Dipt. Scand., Vol. 5, p. 2075 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 141 (1894) et Acta Soc. scient. Fenn., Vol. 26, p. 51 (1900) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905) [*Okenia*]; Wingate, Durham Dipt., p. 295 (1906) [*Okenia*]; Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 79 (1937). *melanura* Zetterstedt, Ins. Lapp., p. 731 (1839) [*Cordylura*] (*teste* Zetterstedt, Dipt. Scand., Vol. 5, p. 2076).	Europe sept., Laponie, Sibérie.
2. *O. dasyprocta* (Loew), Wien. entom. Monatschr., Vol. 8, p. 25 (1864) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 142 (1894) et Acta Soc. scient. Fennicæ, Vol. 26, p. 51 (1900) et Katal. Pal. Dipt., Vol. 4, p. 16 (1905) [*Okenia*]; Wingate, Durham Dipt., p. 295 (1906); Ringdahl, Entom. Tidskr., Vol. 57, p. 166 (1936); Sack, Cordyl., p. 80 (1937).	Europe sept., Laponie, Sibérie.
3. *O. Kincaidi* (Coquillett), Proc. Wash. Acad. Sc., Vol. 2, p. 455 (1900) [*Pogonota*]; Aldrich, Catal. N. Amer. Dipt., p. 567 (1905) [*Pogonota*]; Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 430 (1931).	Iles Pribiloff, Churchill Man.

13. Genus OKENINA Malloch

Okenina Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 427 (1931).

Caractères. — Appartient au même groupe que les *Pogonota* et les *Okeniella*. Les espèces du genre *Okenina* se distinguent des *Pogonota* par le prosternum cilié, par les ailes à nervation normale dans

les deux sexes, sans nervures transverses réunissant les troisième et quatrième nervures longitudinales. Le mâle de l'*O. fulvibarba* peut cependant présenter un très court rameau récurrent sur la face postérieure, à l'apex de la deuxième nervure longitudinale, comme certains mâles de *Pogonota*; la quatrième nervure longitudinale est légèrement courbée en avant et à l'apex dans les deux sexes.

Long. 8-9 mm.

Type du genre. — *Cordylura fulvibarba* Loew.

Répartition géographique. — Canada.

LISTE DES ESPÈCES

1. *O. fulvibarba* (Loew), Dipt. Amer. sept. ind., Cent. X, p. 76 (1872) [*Cordylura*]; Aldrich, Catal. N. Amer. Dipt., p. 565 (1905) [*Cordylura*]; Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 429 (1931). — Canada arctique.
2. *O. pallida* Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 429 (1931). — Canada : Ottawa.

14. Genus PSEUDOPOGONOTA Malloch

Pseudopogonota Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 35 (1920); Curran, North Amer. Dipt., p. 389 (1934).

Caractères. — Tête subrectangulaire, moins de deux fois aussi large que haute. Orbites linéaires; huit soies orbitales (3+5); face oblique; parafaciaux étroits; joues subégales au tiers de la hauteur de l'œil, garnies de quelques cils sur la moitié supérieure; angle vibrissal avec cinq-huit soies. Trompe mince; palpes spatulés, garnis de nombreuses et courtes soies noires. Antennes : troisième article anguleux à l'apex antérieur; chète antennaire à cils aussi longs que le troisième article antennaire. Thorax : acrosticales antérieures courtes, disposées en quatre rangées; soies dorsocentrales courtes, distinctes; soies stigmatique et propleurales faibles ou nulles; ptéropleure nu. Pattes minces, fémurs dépourvus de macrochètes. Aile : première nervure longitudinale nue; troisième et quatrième subparallèles apicalement, sans transverses supplémentaires chez le mâle; sixième nervure (*A*1) complète et prolongée à la marge. — Abdomen mince, élargi chez la femelle, pratiquement dépourvu de macrochètes; deuxième tergite allongé chez le mâle. Hypopyge très développé; forceps externes à branches plus de deux fois plus longues que larges, arrondies à l'apex et munies sur le bord interne de longs poils hérissés; cinquième sternite avec deux apophyses submédianes courtes, verruciformes, armés latéralement d'une touffe de longues soies noires (Malloch).

Long. 7-8 mm.

Type du genre. — *Pseudopogonota Aldrichi* Malloch.

Répartition géographique :

1. *P. Aldrichi* Malloch, Proc. ent. Soc. Wash., Vol. 22, p. 35 (1920). — Amérique sept., Idaho, Colorado
   pallida Malloch, l. c., p. 36 (1920).

15. GENUS POGONOTA ZETTERSTEDT

Pogonota Zetterstedt, Ins. Lapp., p. 735 (1838); Becker, Berlin. entom. Zs., Vol. 39, p. 138 (1894); Coquillett, Proc. Wash. Acad. Sc., Vol. 2, p. 456 (1900); Pandellé, Revue Entom., p. 313 (1901); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 294 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919) et Ann. Mag. Nat. Hist. (10), Vol. 8, p. 426 (1931); Stackelberg, Mouches de l'URSS, p. 494 (1933); Curran, North Amer. Dipt., p. 389 (1934); Séguy, Faune de France, Vol. 28, p. 689 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 77 (1937).

Caractères. — M â l e s . Tête subquadrangulaire, face oblique, peu enfoncée; péristome élargi, saillant; quelques soies vibrissales; partie inférieure de l'occiput avec de longs cils pendants, égalant ou dépassant l'extrémité de la trompe. Cinq ou six orbitales. Trompe grêle; palpes allongés, légèrement spatulés. Antennes étroites, leur extrémité atteignant le niveau du bord inférieur de l'œil; chète nu ou finement pubescent. — Thorax : cinq dorsocentrales (2+3); une-trois humérales, deux posthumérales, une présuturale, trois ou quatre supraalaires; quatre scutellaires; une mésopleurale, une longue sternopleurale; ptéropleure nu. Fémurs antérieurs épaissis, portant une chétotaxie et une pilosité particulières; tibias antérieurs avec une longue soie externe; tibias intermédiaires avec deux soies plantées dans la partie moyenne externe et interne Ailes étroites et longues, première nervure longitudinale (*R1*) nue; deuxième nervure (*R2*) avec un rameau récurrent (*R3*); troisième et quatrième nervures (*M1* et *2*) avec deux rameaux supplémentaires formant des nervures transverses; sixième nervure (*A1*) longue (**fig. 36**).



Fig. 36
Pogonota hircus Zetterstedt, profil du mâle × 12.

Deux espèces : *P. barbata* et *P. hircus*, habitent les régions boréales de la zone holarctique. Le mâle du *P. barbata* se distingue du *P. hircus* par l'hypopyge fortement caréné, entièrement jaune, à longues soies blanchâtres; sternite prégénital gris à lobes moins saillants.

F e m e l l e s . Aile à nervation normale. Oviscapte court, triangulaire, aplati, à lamelles petites, conformé comme chez les *Phrosia* et les *Parallelomma*.

Long. 6-8,5 mm.

Type du genre. — *Pogonota hircus* Zetterstedt.

Répartition géographique. — Régions boréales de la zone holarctique.

LISTE DES ESPÈCES

1. *P. barbata* Zetterstedt, Ins. Lapp., p. 734 (1839) et Dipt. Scand., Vol. 5, p. 2074 (1846); Becker, Berlin. entom. Zs., Vol. 39, — Europe sept., Suède boréale.

p. 140 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Ringdahl, Entom. Tidskr., Vol. 57. p. 165 (1936); Sack, Cordyl., p. 78 (1937).

2. *P. hircus* Zetterstedt, Ins. Lapp., p. 735 (1839) et Dipt. Scand., Vol. 5, p. 2072 (1846); Becker, Berlin. entom. Zs., Vol. 39, p. 139 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Meade, Entom. mon. Mag., p. 175 (1899); Pandellé, Revue Entom., p. 313 (1901); Wingate, Durham Dipt., p. 294 (1906); Malloch, Ann. Mag. Nat. Hist. (10), Vol. 8, p. 427 (1931); Séguy, Faune de France, Vol. 28, p. 689 (1934); Sack, Cordyl., p. 78 (1937); Cheetham, Naturalist, nº 807, p. 129 (1943). — Europe sept. et boréale, Alaska.

sponsa Zetterstedt, Ins. Lapp., p. 735 (1838) [*Cordylura*].

16. Genus ACANTHOCNEMA Becker

Acanthocnema Becker, Berlin. entom. Zs., Vol. 39, p. 136 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Wingate, Durham Dipt., p. 294 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 494 (1933); Curran, Canad. Entom., Vol. 61, p. 132 (1929) et North Amer. Dipt., p. 388 (1934); Séguy, Faune de France, Vol. 28, p. 687 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 75 (1937).

Clinoceroides Hendel, Deutsche entom. Zs., 1917, p. 36.

Spathiophora Pandellé (*nec* Rondani).

Caractères. — Tête arrondie, front légèrement bombé; soies orbitales longues; péristome deux ou trois fois plus large que l'antenne; deux vibrisses. Palpes spatulés, sans pilosité particulière. Antennes médiocres; apex du troisième article arrondi, séparé de la grande vibrisse par un espace égal à la largeur de l'antenne; chète nu ou pubescent. — Cinq dorsocentrales (2+3); acrosticales piliformes, plantées en rangées irrégulières; une ou deux humérales, trois supraalaires et deux intraalaires; quatre scutellaires, toutes également développées, deux chétules apicaux. Une ou deux mésopleurales, une sternopleurale; une propleurale et une stigmatique piliformes. Pattes fortes; fémurs antérieurs légèrement gonflés; tibias intermédiaires avec une soie antéro-externe et une postéro-interne plantées au même niveau. Ailes longues et larges : troisième et quatrième longitudinales un peu courbées. — Abdomen : soies tergales marginales faibles dans les deux sexes.



Fig. 37.

Acanthocnema glaucescens Loew, profil du mâle × 12.

Mâles. — Parfois les tibias antérieurs portent, sur la face antéro-interne, une série longitudinale de spinules courtes disposées en peigne; une épine robuste peut être dressée perpendiculairement sur la face interne à l'apex. Sternite prégénital à lobes écartés, divergents et rabattus; forceps peu saillants (**fig. 37**).

Long. 4-7 mm.

Types des genres. — *Acanthocnema*, type : *Cordylura nigrimana* Zetterstedt. — *Clinoceroides*, type : *Cordylura glaucescens* Loew. — *Spathiophora*, type : *Cordylura glaucescens* Loew.

Répartition géographique — Les représentants du genre *Acanthocnema*, tel qu'il est défini ici, habitent surtout les régions septentrionales de la zone holarctique, sauf l'*A. glaucescens* qui semble assez largement répandu dans toute l'Europe, mais est cependant rare partout; les autres espèces, également peu communes, sont caractéristiques des régions boréales.

Classification. — Les espèces de ce genre paraissent très voisines les unes des autres. En 1917, Hendel a tenté une coupure en établissant un genre *Clinoceroides* pour l'*A. glaucescens* dont voici les caractères :

Verticales postérieures nulles. Trois soies orbitales courbées extérieurement sur les yeux. Toutes les soies et les cils grêles. Ailes : deuxième, troisième et quatrième nervures divergentes; dernier segment de la quatrième longitudinale plus court que le précédent.

Ces caractères, qui affectent partiellement d'autres espèces que *glaucescens*, sont tout au plus d'ordre spécifique. Il semble préférable de conserver le groupement préconisé par Th. Becker.

LISTE DES ESPÈCES

1. *A. albibarba* (Loew), Dipt. Amer. sept. ind., Cent. IX, p. 96 (1869) [*Cordylura*]; Aldrich, Cat. N. Amer. Dipt., p. 565 (1905); Curran, Canad. Entom., Vol. 61, p. 133 (1929). — Amérique sept., New Hampshire.
2. *A. capillatum* (Loew), Dipt. Amer. sept. ind., Cent. X, p. 77 (1872) [*Cleigastra*]; Aldrich, Cat. N. Amer. Dipt., p. 565 (1905) [*Cordylura*] ; Curran, Canad. Entom. Vol. 61, p. 133 (1929). — Floride, New Hampshire.
3. *A. glaucescens* (Loew), Wien. entom. Monatschr., Vol. 8, p. 23 (1873) [*Cordylura*]; Becker, Berlin. ent. Zs., Vol. 39, p. 138 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Pandellé, Rev. Entom., p. 312 (1901); Wingate, Durham Dipt., p. 294 (1906); Séguy, Faune de France, Vol. 28, p. 688 (1934) ; Sack, Cordyl., p. 76 (1937). — Europe cent. et occid.
4. *A. latipenne* Becker, Berlin. ent. Zs., Vol. 39, p. 138 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905) ; Wingate, Durham Dipt., p. 294 (1906); Séguy, Faune de France, Vol. 28, p. 687 (1934); Sack, Cordyl., p. 77 (1937). — Europe cent. (Silésie) et occid.
5. *A. nigrimanum* Zetterstedt, Dipt. Scand., Vol. 5, p. 2040 (1846) [*Cordylura*]; Becker, Berlin. ent. Zs., Vol. 39, p. 137 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Wingate, Durham Dipt., p. 294 (1906); Séguy, Faune de France, Vol. 28, p. 687 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 77 (1937). — Europe cent.
   Tiefi Mik, Verh. Zool.-bot. Ges. Wien. Vol. 23, p. 252 (1883) [*Hydromyza*].
6. *A. nigripes* Ringdahl, Entom. Tidskr., Vol. 57, p. 175, figs. (1936). — Europe sept.
7. *A. ruficauda* Curran, Canad. Entom., Vol. 61, p. 133 (1929). — Etats-Unis d'Amérique, Colorado.

17. GENUS ERNONEURA BECKER

Ernoneura Becker, Berlin. entom. Zs., Vol. 39, p. 135 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Wingate, Durham Dipt., p. 294 (1906); Malloch, Rep. Canad. Arct. Exped., p. 80 c

(1919); Stackelberg, Mouches de l'URSS, p. 493 (1933); Curran, North Amer. Dipt., p. 387 (1934); Séguy, Faune de France, Vol. 28, p. 649 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 75 (1937).

Caractères. — Yeux subovalaires, légèrement plus longs que larges. Six paires de soies fronto-orbitales. Deux soies vibrissales et plusieurs chétules. Palpes en massue allongée. Antennes étendues jusqu'au milieu de la face, troisième article arrondi à l'extrémité; chète court, pratiquement nu. — Thorax à soies faibles; cinq paires de soies dorsocentrales (2+3); une ou deux humérales; deux posthumérales, une présuturale, trois supraalaires, intrahumérales et intraalaires nulles; quatre scutellaires marginales. Une ou deux mésopleurales; une sternopleurale ou non; sternum avec une épaisse et longue villosité molle; ptéropleure cilié, deux fines soies propleurales. Fémurs dépourvus de macrochètes, mais couverts d'une villosité fine; tibias postérieurs avec deux paires de soies externes. Ailes à nervation dirigée comme chez les *Cordylura*, mais la troisième nervure avec des rameaux récurrents, perpendiculaires, irréguliers; membrane avec des taches rondes irrégulières (**fig. 38**). — Abdomen : derniers tergites abdominaux seulement munis de soies.

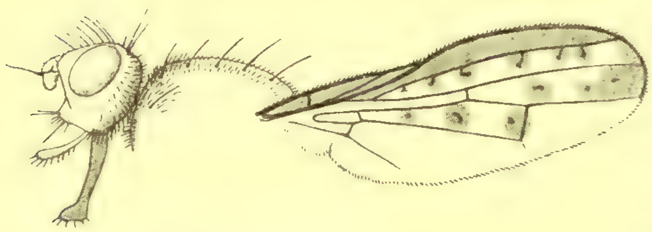


Fig. 38.

Ernoneura Argus Zetterstedt, aile et tête du mâle × 15.

Long. 5 mm.

Type du genre. — *Scaptomyza Argus* Zetterstedt.

Répartition géographique. — Régions arctiques de la zone holarctique.

1. *E. Argus* (Zetterstedt), Ins. Lapp., p. 727 (1838) et Dipt. Scand., Vol. 5, p. 1980 (1846) [*Scaptomyza*]; Becker, Berlin. entom. Zs., Vol. 39, p. 136 (1894) et Katal. Pal. Dipt., Vol. 4, p. 15 (1905); Riedel, Allgem. Zs. Entom., Vol. 6, p. 152 (1901); Malloch, Rep. Canad. Arct. Exped., p. 80 (1919); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 75 (1937). — Europe arctique, Laponie, Canada arctique, Détroit de l'Union et du Dauphin.

18. Genus HYDROMYZA Fallén

Hydromyza Fallén, Dipt. Suec., Hydromyz., Vol. 1, p. 1 (1823); Schiner, F. A., Vol. 2, p. 13 (1864); Becker, Berlin. entom. Zs., Vol. 39, p. 132 (1894) et Katal. Pal. Dipt., Vol. 4, p. 14 (1905); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Wingate, Durham Dipt., p. 294 (1906); Malloch, Rep. Canad. Arct. Exped., p. 76 (1919); Stackelberg, Mouches de l'URSS, p. 493 (1933); Curran, North Amer. Dipt., p. 387 (1934); Séguy, Faune de France, Vol. 28, p. 649 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 165 (1936); Sack, Cordyl., p. 74 (1937).

Nupharia Robineau-Desvoidy, Myodaires, p. 785 (1823).

Caractères. — Tête plus haute que large. Espace interoculaire et joues larges; péristome égal à deux fois la largeur de l'antenne. Orbites étroites. Soies orbitales petites (3.4); une verticale, soies

occipitales réduites; une vibrissale et quelques petites soies accessoires. Trompe épaisse, courte; palpes aplatis, à soies latérales plus développées. Antennes courtes, troisième article arrondi; chète antennaire nu, épaissi à la base. — Thorax : soies scapulaires remplacées par un groupe de spinules, soies acrosticales et dorsocentrales indiquées par une ligne serrée de chétules dressés; une paire de soies dorsocentrales préscutellaires courtes. Scutellum tronqué à l'apex, avec quatre soies et deux épines prébasales. Une soie humérale, deux posthumérales, deux notopleurales, deux supraalaires, deux postalaires, un chète propleural, une soie sternopleurale et une ou deux mésopleurales, ptéropleure nu. Fémurs antérieurs épais; tibias postérieurs dilatés à l'apex; tarse : cinquième article dilaté. Ailes longues, étroites; troisième et quatrième nervures légèrement convergentes. — Abdomen aplati à la base. Hypopyge mâle petit.

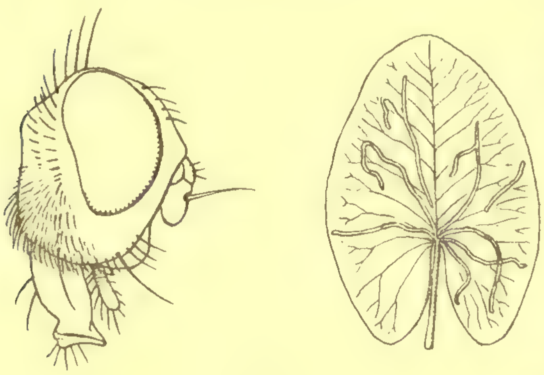


Fig. 39.

Hydromyza livens (Fabricius), à gauche profil de la tête du mâle × 20 (orig.); — à droite schéma d'une feuille de *Nuphar* montrant les galeries larvaires (selon M. Hering).

Long. 6-9 mm.

Types des genres. — *Hydromyza : Musca livens* Fabricius, — *Nupharia : N. rivularis* R.-D.

Biologie. — Les larves des *Hydromyza* minent les feuilles des Nymphéacées. (**fig. 39**).

Répartition géographique. — Régions septentrionales de la zone holarctique.

LISTE DES ESPÈCES

1. *H. confluens* Loew, Dipt. Amer. sept. ind., Cent. III, p. 50 (1863); Aldrich, Catal. N. Amer. Dipt., p. 567 (1905); Needham *ap.* Hankinson, Biol. surv. Walnut Lake, p. 270 (1909); Welch, Ann. ent. Soc. Amer., Vol. 7, 135 (1914) et Vol. 10, p. 35 (1917) [*biol., ovum*]; Hickman, Proc. Ind. Acad. Sc., Vol. 44, p. 212 (1935) [*larva*]. — Canada, Michigan.

   La larve est mineuse et cécidogène sur les pétioles du *Nuphar advena* Aiton (*Nymphæa americana* Provancher).

2. *H. livens* (Fabricius), Ent. Syst., Vol. 4, p. 345 (1794) [*Musca*]; Fallén, Dipt. Suec., Hydromyz., Vol. 1, p. 1 (1823); Curtis, Brit. Ent., p. 485 (1832); Meigen, Syst., Beschr., Vol. 5, p. 243 (1826) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 386 (1835) [*Cleigastra*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2035 (1846) [*Cordylura*]; Schiner, F. A., Vol. 2, page 14 (1864); Gercke, Verh. Vereins nat. Unterh. Hamburg, Vol. 4, p. 229 (1881); Brauer, Denkschr. Akad. Wissens., Vol. 47, p. 93 (1883); Becker, Berlin. entom. Zs., Vol. 39, p. 135 (1894) et Katal. Pal. Dipt., Vol. 4, p. 14 (1905); Meijere, Tijdr. v. Entom., Vol. 38, p. 65 (1895) et Entom. Bericht der Ned. Entom. Ver., Vol. 10, p. 220 (1940); Meade, Entom. mon. Mag., p. 175 (1899); Wingate, Durham Dipt., p. 294 (1906); Hendel, Blattminen., p. 76, n° 245 (1928); Séguy, Faune de France, Vol. 28, p. 690 (1934); Ringdahl, Entom. Tidskr., — Europe cent. et sept., Laponie.

Vol. 57, p. 165 (1936); Sack, Cordyl., p. 74 (1937); Hering, Blattminen., p. 341 (1937).

rivularis Robineau-Desvoidy, Myodaires, p. 785 (1830) [*Nupharia*].

La larve mine les tiges et les feuilles du *Nuphar luteum* Sibth. et Sm. et du *Nymphæa alba* L. (fig. 39).

Subfam. SCATOMYZINÆ

Caractères. — Imagos. — Tête arrondie. Espace interoculaire large et aplani. Palpes étroits, non spatulés. Antennes courtes, n'atteignant pas l'épistome. — Soies propleurales ciliformes, parfois décolorées ou nulles. Cinq ou six soies dorsocentrales (2.3+3). Soies acrosticales disposées en deux rangées ou plus, régulières ou non. Quatre scutellaires au moins. Une soie sternopleurale. Corps souvent couvert d'une fourrure lâche, formée de poils fins, un peu frisés, plus épais et serrés sur l'abdomen. Pattes robustes, armées de macrochètes épais. Ailes longues; première nervure radiale (*R1*) nue; troisième et quatrième nervures (*M1*, *M2a+b*) parallèles ou divergentes, exceptionnellement convergentes (*Scopeuma scybalarium*). — Abdomen légèrement renflé à l'apex chez les mâles, conique chez les femelles. Cerques petits, peu chitinisés, sternite prégénital parfois saillant en soc de charrue.

Diptères fimicoles et zoophages, prédateurs, occasionnellement coprophages ou saprophages, exceptionnellement anthophiles.

Certaines espèces de cette sous-famille présentent un dimorphisme sexuel étendu. Chez d'autres on observe un comportement inhabituel : Robineau-Desvoidy (Myodaires, p. 625) signale l'accouplement du mâle du *Scatophaga scybalaria* avec la femelle du *S. nemorum* (*suilla*). M. H. Audcent m'a signalé autrefois avoir observé l'accouplement des *S. lutaria* et *inquinata*. Si ces faits se confirment, la liste des espèces de *Scopeuma* donnée ci-dessous devra être revisée, et l'étude de leur biologie permettra sans doute, en réduisant leur nombre, d'augmenter celui des synonymes.

Œufs. — Allongés, à coquille dure et luisante, d'un blanc crayeux, couverte d'une réticulation hexagonale plus ou moins marquée, élégante; légèrement aplatis sur la face ventrale, portant à une extrémité deux dilatations aliformes étroites et minces.

Larves. — Corps allongé, légèrement aminci en avant. Peau épaisse, plus ou moins transparente; mandibules robustes; organes sensoriels céphaliques très développés. Abdomen : segments munis de bourrelets locomoteurs formés de spinules épaisses. Stigmates prothoraciques formés de lobes nombreux; stigmates postérieurs saillants ou non. La partie postérieure du corps présente toujours des protubérances sensorielles plus ou moins nombreuses.

Larves zoophages, coprophages ou saprophages.

TABLEAU DES GENRES

1 (2). *Tête élargie. Antennes : 3ᵉ article court, tronqué à l'apex, 2ᵉ article épais, saillant sur le troisième* (fig. 40) . . . . 1. Ceratinostoma Meade.

2 (1). *Tête subsphérique. Antennes : 3ᵉ article allongé, arrondi à l'extrémité* (fig. 41-43).

3 (4). *Tibias II et III dépourvus de soies internes apicales courbées* (*éperons*). *Abdomen à segments scalariformes* . . . . 2. Coniosternum Becker.

4 (3). *Tibias II et III avec un groupe de fortes soies noires courbées, plantées à l'apex de la face interne. Segments abdominaux non scalariformes.*

5 (6). *Soies propleurales faibles ou ciliformes, mais toujours distinctes. Péristome avec une ou plusieurs soies latérales en dehors des vibrissales* **(fig. 42)**. . . . . 3. SCATOMYZA Fallén.

6 (5). *Soies propleurales nulles. Péristome sans macrochètes en dehors des vibrisses* **(fig. 43)** . . . . 4. SCOPEUMA Meigen.

1. GENUS CERATINOSTOMA MEADE

Ceratinostoma Meade, Ent. mon. Mag., Vol. 22, p. 152 (1885-86); Becker, Katal. Pal. Dipt., Vol. 4, p. 12 (1905); Malloch, Rep. Canad. Arct. Exped., p. 77 c (1919); Stackelberg, Mouches de l'URSS, p. 497 (1933); Curran, North Amer. Dipt., p. 389 (1934); Séguy, Faune de France, Vol. 28, p. 692 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 171 (1936); Sack, Cordyl., p. 64 (1937).

Caractères. — Occiput aplati en haut; face inclinée; épistome non saillant; vibrisses fortes. Trompe allongée, robuste, à labelles petites; palpes allongés, épaissis à l'extrémité, jaunes, couverts de petites soies noires sur toute la longueur de la face supérieure; face inférieure à pilosité plus fine et plus longue, formée de poils jaunes et noirs. Chète antennaire cilié. — Mésonotum sans soie scapulaire. Soies propleurales et stigmatiques faibles ou piliformes, mais bien visibles; soies dorsocentrales faibles, sauf les préscutellaires; au moins trois mésopleurales. Quatre scutellaires : les apicales plus robustes; scutellum cilié sur toute sa surface. Fémurs et tibias à soies fortes; tibias antérieurs avec une soie antéro-interne, deux soies antérieures et trois postérieures longues; fémurs intermédiaires avec une forte soie antéro-médiane. — Abdomen à pilosité courte, raide et couchée, non dressée en fourrure **(fig. 40)**.

Long. 6-8 mm.

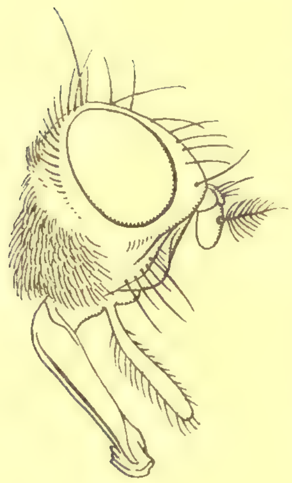


Fig. 40.
Ceratinostoma ostiorum Haliday, profil de la tête du mâle × 20.

Type du genre. — *Scatophaga ostiorum* Haliday.

Biologie. — Diptères thalassophiles, scatophages ou saprophages.

LISTE DES ESPÈCES

1. *C. nudiseta* Becker, Mém. Acad. Sciences St-Pétersbourg, Vol. 18, 10, p. 4 (1907). — Presqu'île de Jaimyr.

2. *C. ostiorum* (Haliday), Curtis, Brit. Entom., p. 405 (1832) [*Scatophaga*]; Meade, Entom. mon. Mag., p. 218 (1899); Becker, Katal. Pal. Dipt., Vol. 4, p. 12 (1905); Johnson, Psyche, Vol. 17, p. 234 (1910); Séguy, Faune de France, Vol. 28, p. 692 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 171 (1936); Sack, Cordyl., p. 48 et 64 (1937). — Toute la région holarctique.

borealis Zetterstedt, Ins. Lapp., p. 721 (1839) et Dipt. Scand., Vol. 5, p. 1971 (1846) [*Scatomyza*]; *teste* Röder, Wien. entom. Ztg., Vol. 3, p. 290 (1884), *teste* Ringdahl, Entom. Tidskr., Vol. 57, p. 171 (1936).

lestremensis Bigot, Ann. Soc. ent. France (6), Vol. 4, p. 292 (1884) [*Lispa*].

maritimum Meade, Entom. mon. Mag., Vol. 22, p. 152 et 178 (1885); von Röder, Wien. ent. Ztg., Vol. 3, p. 290 (1884); Becker, Berlin. entom. Zs., Vol. 39, p. 170 (1894) [*Scatophaga*].

oceana Macquart, Ann. Soc. ent. Fr., Vol. 7, p. 423 (1838) [*Scatophaga*], *teste* Röder, l. c.; Harris, Science Goss., Vol. 23, p. 152 (1887).

2. Genus CONIOSTERNUM Becker

Coniosternum Becker, Berlin. entom. Zs., Vol. 39, p. 176 (1894) et Katal. Pal. Dipt., Vol. 4, p. 12 (1905); Wingate, Durham Dipt., p. 297 (1906); Stackelberg, Mouches de l'URSS, p. 497 (1933); Séguy, Faune de France, Vol. 28, p. 691 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Sack, Cordyl., p. 62 (1937); Tiensuu, Ann. ent. Fenn., Vol. 12, p. 7 (1948).

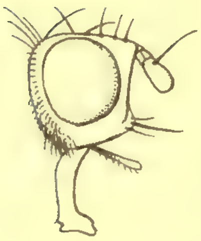


Fig. 41.

Coniosternum obscurum Fallén, profil de la tête du mâle × 15.

Caractères. — Trois soies vibrissales. Palpes petits, non élargis. Antennes : chète épaissi à la base, à pubescence fine. — Soies acrosticales piliformes; prothoracale nulle; une ou deux mésopleurales. Scutellum cilié sur toute sa surface, quatre soies marginales. Fémurs épaissis, sans soies; tibias III avec deux ou trois paires de soies externes. — Abdomen légèrement aplati (**fig. 41**).

Long. 5-6 mm.

Type du genre. — *Cordylura obscura* Fallén.

Répartition géographique. — Europe centrale et septentrionale. Laponie.

LISTE DES ESPÈCES

1. *C. infumatum* Becker, Ann. Mus. Zool., Vol. 12, p. 256 (1907).	Tibet oriental.
2. *C. lapponicum* Ringdahl, Entom. Tidskr., Vol. 41, p. 39 (1920) et Vol 57, p. 169 (1936); Tiensuu, Ann. entom. Fennici, Vol. 12, p. 7 (1946).	Laponie.
3. *C. nigrohirtum* Czerny *ap.* Czerny et Strobl, Verh. zool.-bot. Ges. Wien, Vol. 59, p. 248 (1909).	Espagne.
4. *C. obscurum* (Fallén), Dipt. Suec., Scaptom., p. 9 (1819) [*Cordylura*]; Macquart, S. à Buff., Vol. 2, p. 385 (1835) [*Cleigastra*]; Zetterstedt, Dipt. Scand., Vol. 5, p. 2066 (1846) [*Cordylura*]; Becker, Berlin. entom. Zs., Vol. 39, p. 177 (1894) et Katal. Pal. Dipt., Vol. 4, p. 12 (1905); Meade, Entom. mon. Mag., p. 177 (1899) [*Cleigastra*]; Pandellé, Rev. Entom., p. 305 (1901) [*Cordylura*]; Wingate, Durham Dipt., p. 307 (1906); Séguy, Faune de France, Vol. 28, p. 691 (1934); Ringdahl, Entom. Tidskr., Vol 57, p. 169 (1936); Sack, Cordyl., p. 63 (1937); Tiensuu, Ann. entom. Fennici, Vol. 12, p. 7 (1946).	Europe cent. et sept.
5. *C. tinctinervis* Becker, Berlin. entom. Zs., Vol. 39, p. 178, 115 (1894); Sack, Cordyl., p. 64 (1937); Tiensuu, Ann. entom. Fennici, Vol. 12, p. 6 (1946).	Europe centr. et sept., Finlande.

3. Genus SCATOMYZA Fallén

Scatomyza Fallén, Spec. entom. nov. Dipt., p. 4 (1810) et Scatom. Suec., p. 4 (1819); Zetterstedt, Ins. Lapp., p. 727 (1839) et Dipt. Scand., Vol. 5, p. 1957 (1846) [p.p.]; Séguy, Enc. ent. (B), II, Diptera, Vol. 6, p. 179 (1932); Sack, Cordyl., p. 61 (1937).

Scatophagella Szilady, Ann. Mus. nat. Hung., Vol. 24, p. 596 (1926).

Scatophaga (auct.) et Séguy (*nec* Meigen), Faune de France, Vol. 28, p. 692 (1934).

Caractères. — Une grande vibrisse et quelques petites vibrisses accessoires. Barbe fine. Trompe mince, subcylindrique. Antennes : apex du troisième article arrondi, séparé de la grande vibrisse par un espace égal à la largeur de l'antenne; chète antennaire pratiquement nu, pubescent à une forte amplification (**fig. 42**). — Soie scapulaire robuste. Soies acrosticales piliformes, disposées en deux rangées régulières, la paire préscutellaire plus forte; au moins une soie mésopleurale. Scutellum dénudé sur la ligne médiane; quatre ou six soies marginales, deux soies discales faibles; soie propleurale longue, stigmatique fine; une forte sternopleurale. Ptéropleure hérissé de cils dressés. Fémurs intermédiaires avec une rangée antérieure de soies grêles, ces soies plus fortes chez les femelles; soie antéro-médiane avortée. Tibias antérieurs avec une soie postérieure submédiane; soies antérieures avortées ou nulles. — Abdomen couvert d'une pilosité fine, longue, dressée, un peu frisée.

Long. 5-8 mm.

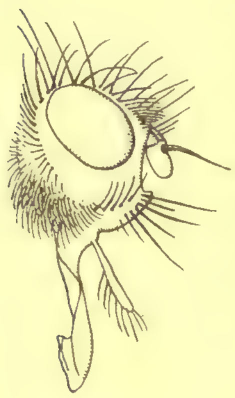


Fig. 42.

Scatomyza impudica (Reiche), profil de la tête du mâle×15.

Types des genres. — *Scatomyza*, type : *S. litorea* Fallén. — *Scatophagella*, type : *S. pubescens* Szilady. — *Scatophaga*, type : *Scatomyza litorea* Fallén.

Biologie. — La larve du *Scatomyza islandica* (*impudica*) a été trouvée dans un amas de débris de Buccins (Villeneuve, Bull. Soc. ent. France, p. 309, 1917). Les imagos sont des mouches littorales.

LISTE DES ESPÈCES

1. *S. fontanale* (Rondani), Prodr., Vol. 7, Scatoph., p. 30 (1866) [*Scatina*]; Meade, Entom. mon. Mag., p. 222 (1899) [*Scatophaga*]; Sack, Cordyl., p. 62 (1937).	Italie, Europe mérid.
2. *S. hyperborea* Boheman, Ofvers. Kgl. Vet.-Akad. Förh., Vol. 22, p. 572 (1866).	Spitzberg.
3. *S. impudica* (Reiche), Bull. Soc. ent. France (3), Vol. 5, p. IX, 5 (1857) [*Anthomyia*]; Loew, Berlin. entom. Zs., Vol. 2, p. 347 (1858); Aldrich, Catal. N. Amer. Dipt., p. 565 (1905) [*Cordylura*]; Séguy, Enc. ent. (B), II, Dipt., Vol. 6, p. 179 (1932) et Faune de France, Vol. 28, p. 693 (1934); Sack, Cordyl., p. 61 (1937). *islandica* Becker, Berlin. ent. Zs., Vol. 39, p. 175 (1894) et Mém. Acad. Sc. St-Pétersb., p. 396,1 (1897) [*Scatophaga*]; Coquillett, Dipt. Commander Ids., p. 345 (1899) et Proc. Wash. Acad. Sc., Vol. 2, p. 454 (1900); Aldrich, Catal. N. Amer. Dipt., p. 569 (1905); Wingate, Durham Dipt., p. 307 (1906); Mercier, Bull. Soc. entom. Belgique, Vol. 65, p. 177 (1925); Lindroth, Zool. Bidr., Vol. 13, p. 303 (1931); Collin, Ann. Mag. Nat. Hist. (10), Vol. 15, p. 377 (1935).	Nouvelle-Zemble, Islande, Iles Feroë, Labrador, Alaska, Iles Pribilof et du Commandeur.
4. *S. Janmayeni* Séguy, Enc. ent., (B), II, Dipt., Vol. 9, p. 109 (1938).	Ile Jan Mayen.
5. *S. litorea* Fallén, Dipt. Suec. Scatomyz., p. 4 (1819); Meigen, Syst. Beschr., Vol. 5, p. 254 (1826); Zetterstedt, Ins. Lapp., p. 722 (1839) et Dipt. Scand., Vol. 5, p. 1975 (1846); Staeger, Naturh. Tidskr., (2), Vol. 1, p. 360 (1845); Schiner, F. A., Vol. 2, p. 18 (1864) [*Scatophaga*]; Walker, Ins. Brit. Dipt.,	Europe, Nouvelle-Zemble, Laponie, Groënland.

Vol. 2, p. 155 (1853); Rondani, Prodr., Vol. 7, Scatophag., p. 29 (1866) [*Scatina*]; Becker, Berlin. entom. Zs., Vol. 39, p. 172 (1894) et Katal. Pal. Dipt., Vol. 4, p. 9 (1905) [*Scatophaga*]; Meade, Entom. mon. Mag., p. 223 (1899); Lundbeck, Vidensk. Medd., p. 296 (1900); Pandellé, Revue Entom., p. 310 (1898) [*Leptopa*]; Aldrich, Catal. N. Amer. Dipt., p. 569 (1905) [*Scatophaga*]; Wingate, Durham Dipt., p. 307 (1906); Mercier, Bull. Soc. entom. Belgique, Vol. 65, p. 177 (1925); Lindroth, Zool. Bid., Vol. 13, p. 303 (1931); Séguy, Faune de France, Vol. 28, p. 693 (1934) [*Scatöphaga*]; Ringdahl, Entom. Tidskr., Vol. 57, p. 170 (1936); Sack, Cordyl., p. 62 (1937).

nigripes Holmgreen, Klg. Vet. Akad. Handl., Vol. 8, p. 5 (1869) et Klg. Vet. Forh., n° 6, p. 103 (1872) et Entom. Tidskr., p. 172 (1880) [*Scatophaga*]; *teste* Becker, Katal., p. 9 (1908); *teste* Collin, Ann. Mag. Nat. Hist. (10), Vol. 7, p. 90 (1931) [*Scatophaga*]; Malloch, Ann. Mag. Nat. Hist., (10), Vol. 8, p. 442 (1931).

6. *S. nigricornis* (Robineau-Desvoidy), Myodaires, p. 627 (1830) [*Scatophaga*]; Séguy, Faune de France, Vol. 28, p. 694 (1934) [*Scatophaga*]. — France sept.

litorea var. *nigricornis* Sack, Cordyl., p. 62 (1937).

rufiventris Villeneuve, Bull. Soc. ent. France, p. 308 (1917); *teste* Séguy, Faune de France, Vol. 28, p. 694 (1934).

7. *S. obscura* Boheman, Ofvers. Kgl. Vet.-Akad. Forh., Vol. 22, p. 573 (1866). — Spitzberg.

8. *S. pallipes* (Szilady), Ann. Mus. Nat. hung., Vol. 24, p. 597 (1926) [*Scatophagella*]. — Tunis.

9. *S. pubescens* (Szilady), Ann. Mus. Nat. Hung., Vol. 24, p. 596 (1926) (*Scatophagella*). — Hongrie.

10. *S. Stuxbergi* Holmgreen, Entom. Tidskr., p. 174 (1880) et Nov. sp. Ins., p. 24 (1880); Sack, Cordyl., p. 62 (1937). — Iles Feroë, Nouvelle-Zemble.

11. *S. tessellata* (Macquart), Ann. Soc. ent. France, Vol. I, p. 7 (1822) [*Scatophaga*]; Séguy, Faune de France, Vol. 28, p. 694 (1934). — France.

4. GENUS SCOPEUMA MEIGEN

Scopeuma Meigen, Nouvelle Classific., p. 36 (1800); Stackelberg, Mouches de l'URSS, p. 496 (1933); Curran, North Amer. Dipt., p. 387, 389 (1934); Séguy, Faune de France, Vol. 28, p. 694 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936); Sack, Cordyl., p. 46 (1937).

Amina Robineau-Desvoidy, Myodaires, p. 629 (1830).

Pyropa Say, Journ. Acad. Sci. Phil., Vol. 3, p. 98 (1823).

Scathophaga Meigen, Mag. Insekt. (Illiger), Vol. 2, p. 277 (1803).

Scatina Robineau-Desvoidy, Myodaires, p. 628 (1830); Rondani, Prodr., Vol. 7, p. 5 (1866); Séguy, Faune de France, Vol. 28, p. 701 (1934).

Scatophaga Meigen, Syst. Beschr., Vol, 5, p. 246 (1826); Becker, Berlin. entom. Zs., Vol. 29, p. 161 (1894) et Katal. Pal. Dipt., Vol. 4, p. 8 (1905); Van der Wulp, Biologia C. A., Dipt., Vol. 2, p. 348 (1898); Pandellé, Revue Entom., p. 312 et 314 (1901); Aldrich, Catal. N. Amer. Dipt., p. 568 (1905); Wingate, Durham Dipt., p. 296 et 304 (1906); Malloch, Rep. Canad. Arct. Exped., p. 77

et 81 (1919) et N. Amer. Fauna, Vol. 46, p. 201 (1923) et Ann. Mag. Nat. Hist. (10), Vol. 8, p. 439 (1931) et Vol. 15, p. 242 (1935); Hobby, Proc. ent. Soc. Lond., Vol. 6, p. 47 et Trans. ent. Soc. S. Engl., Vol. 7, p. 35 (1931) et J. Ent. Soc. S. Engl., Vol. 1, p. 74 et 106 (1933); Séguy, Faune de France, Vol. 28, p. 692 (1934); Ringdahl, Entom. Tidskr., Vol. 57, p. 169 (1936).

Tomella Robineau-Desvoidy, Myodaires, p. 630 (1830).

Caractères. — Occiput gonflé en haut; épistome légèrement saillant en avant. Barbe plus ou moins touffue et pendante. Une grande vibrisse et quelques petites vibrissales. Trompe noire, robuste, plus ou moins comprimée latéralement; palpes jaunes ou blanchâtres, plus courts que la trompe en extension, sans longue soie apicale, mais couverts d'une fine pilosité plus longue en bas, et de petites soies noires réunies dans la partie apicale seulement. Chète antennaire nu, pubescent ou cilié (subplumeux). — Une soie supraalaire, au moins une soie mésopleurale; scutellum dénudé sur la ligne médiane; quatre ou six macrochètes. Soies propleurales et stigmatiques non ou peu différenciées de la pilosité adjacente. Une seule soie sternopleurale forte : la troisième. Certains groupes d'espèces de ce genre présentent une pilosité ptéropleurale ou prosternale, d'autres possèdent une pilosité dressée sur le calus supraspiraculaire du métathorax; ces caractères importants et constants dans quelques genres de Myodaires supérieurs, sont ici assez décevants. Hanches antérieures avec ou sans macrochètes apicaux externes; fémurs antérieurs dépourvus de soies antéro-internes; tibias antérieurs sans sétules internes courtes et fortes, et sans soie antéro-interne préapicale bien développée; une seule longue soie postérieure; soies antérieures avortées ou nulles; fémurs intermédiaires avec une rangée de soies grêles ou la soie antéro-médiane avortée. Ailes : première nervure longitudinale (R_1) nue, sixième nervure complète. — Abdomen souvent couvert d'une pilosité fine et dressée en fourrure, sans soies plus robustes chez les mâles; cette pilosité couchée, bordée de soies marginales robustes chez les femelles. Bande médiane frontale rouge, orange ou jaune. Balanciers roux. Hypopyge mâle sans longues soies (**fig. 43 et 44**). La couleur, la taille et la densité du revêtement pileux, la pruinosité, la chétosité acrosticale, sont variables d'une espèce à l'autre.

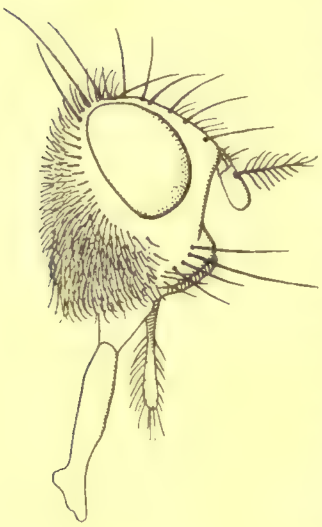


Fig. 43.

Scopeuma stercorarium (Linné), profil de la tête du mâle × 15.

Types des genres. — *Scopeuma*, type : *Musca stercoraria* Linné. — *Amina*, type : *A. parisiensis* Rob.-Desv. — *Pyropa*, type : *P. furcata* Say. — *Scathophaga*, type : *Musca merdaria* Fabricius. — *Scatina*, type : *S. claripennis* Rob.-Desv. — *Scatophaga*, type : *Musca merdaria* Fabricius. — *Tomella*, type : *T. Guerini* Rob.-Desv.

Biologie. — Diptères prédateurs et zoophages, occasionnellement saprophages ou copiophages sur les excréments des grands Vertébrés. Chassent les insectes à téguments mous qui vivent dans le même milieu. Rarement sur les fleurs au soleil.

Œufs. — Allongés, à coquille dure et lisse, d'un blanc jaunâtre, finement réticulée au pôle antérieur, la partie apicale et ventrale munie de deux prolongements aliformes étendus jusqu'à la moitié de leur longueur ou plus (**fig. 44**).

Larves. — Corps mou, cylindrique, blanchâtre, à téguments transparents, formé de onze segments. Tête petite, rétractile; organes antenniformes biarticulés, placés sur deux grandes apophyses coniques, dressées de chaque côté du segment céphalique; mandibules robustes, en crochets étroits;

pièce intermédiaire grande, rectangulaire. Stigmates prothoraciques saillants, portant 9-16 prolongements digitiformes. Dernier segment abdominal bordé par 8-12 tubercules coniques : ceux du bord supérieur parfois réduits ou nuls. Stigmates postérieurs saillants ou non; chambre feutrée courte. Bord antérieur des segments abdominaux armé de spinules microscopiques. Des bourrelets locomoteurs ou non.

Long. 7-13 mm.

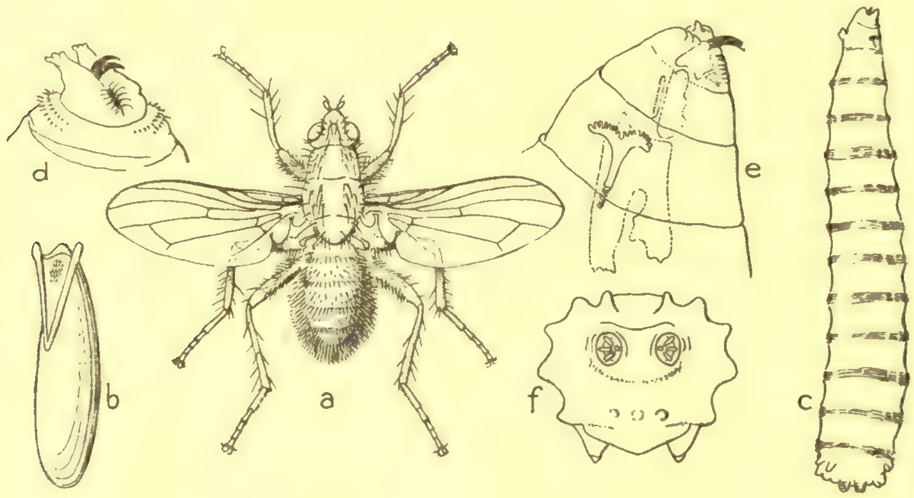


Fig. 44.

Scopeuma stercorarium (Linné). — *a*. Mâle × 4; — *b*. œuf; — *c*. larve au troisième âge; — *d*. pseudocéphalon de la larve montrant les mandibules et les organes sensoriels (vu de 3/4); — *e*. partie antérieure du corps de la larve montrant le stigmate prothoracique; le contour de l'appareil buccal est indiqué par un pointillé; — *f*. extrémité postérieure du corps de la larve vue de face pour montrer les stigmates postérieurs.

Insectes coprophages et zoophages. La métamorphose a lieu dans la terre à peu de profondeur. Au printemps et en été elle dure près d'un mois.

Répartition géographique. — La majorité des espèces habite l'hémisphère boréal où certaines sont très répandues. Quelques rares espèces se trouvent dans les régions froides ou montagneuses de l'hémisphère austral.

LISTE DES ESPÈCES

1. *S. alatum* (Becker), Ann. Soc. ent. France, Vol. 83, p. 127 (1914) et Voy. Alluaud et Jeannel, Afr. orient., Dipt., 5, p. 171 (1905) [*Scatophaga*]; van Emden, Bull. ent. Res., Vol. 32, p. 254 (1941) et Ruwenzori Exped., Vol. 2, 6, p. 335 (1951). — Afrique orient., Mont Kénya.
2. *S. albidohirtum* (Becker), Ann. Mus. zool. St-Pétersbourg, Vol. 12, p. 254 (1907) [*Scatophaga*]. — Tibet.
3. *S. amplipenne* (Portschinsky), Horæ Soc. ent. Ross., Vol. 21, p. 199 (1887) [*Scatophaga*]; Becker, Ann. Mus. Zool. St-Pétersbourg, Vol. 12, p. 253 (1907); Aldrich, Proc. U. S. Nat. Mus., Vol. 81, p. 13 (1932); Sack, Cordyl., p, 49 (1937). — Asie cent., Tibet.
4. *S. anale* (Meigen), System. Beschr., Vol. 5, p. 251 (1826) [*Scatophaga*]; Macquart, S. à Buff., Vol. 2, p. 393 (1835) [*Scatophaga*]; Schiner, F. A., Vol. 2, p. 16 (1864) [*Scatophaga*]; Becker, — Europe cent.

Berlin. entom. Zs., Vol. 39, p. 169 (1894); Meade, Entom. mon. Mag., p. 221 (1899); Wingate, Durham Dipt., p. 305 (1906); Bezzi, Mem. Soc. ital. Sc. nat., Vol. 9, p. 56 (1918); Séguy, Faune de France, Vol. 28, p. 697 (1934); Sack, Cordyl., p. 49 (1937).

5. *S. arcticum* (Becker), Mém. Acad. Sc. St-Pétersb., Vol. 2, p. 398 (1897) [*Scatophaga*]; Sack, Cordyl., p. 50 (1937). — Nouvelle-Zemble.

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